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PRESONUS STUDIO ONE
CAKEWALK SONAR 8.5
CYTOMIC THE GLUE
ROB PAPEN RP-VERB
D16 GROUP TORAVERB
AND MUCH MORE!



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Future Publishing Ltd.
30 Monmouth Street, Bath, BA1 2BW
Tel: 01225 442244 Fax: 01225 732275
Email: cm@futurenet.co.uk
Web: www.musicradar.com/cm

EDITORIAL

Editor: Ronan Macdonald, ronan.macdonald@futurenet.com
Deputy Editor: Lee du Caine, lee.du-caine@futurenet.com
Multimedia Editor: Tim Cant, tim.cant@futurenet.com
Senior Art Editor: Rodney Dive, rodney.dive@futurenet.com
Art Editor: Stuart Ratcliffe, stuart.ratcliffe@futurenet.com
Production Assistant: Craig Hitchings, craig.hitchings@futurenet.com
Editor, cm Specials: Andrea Robinson, andrea.robinson@futurenet.com

CONTRIBUTORS

Graham Morrison, Rob Boffard, Ali Jamieson, Scot Solida, Alex Williams, Jon Musgrave, rachMiel, Ben Rogerson, Andy Jones, Ali Jamieson, Owen Palmer, Greg Scarth, Chris Randall, Roger Cawkwell, Tim Oliver, Chris Wickett, David Newman, Paul Taylor
Illustration: *Burning Question*: Jake
Stock Photography: iStockphoto

Group Senior Editor: Julie Tolley
Creative Director: Robin Abbott
Design Director: Matthew Williams
Editorial Director: Jim Douglas

ADVERTISING

Ad Director: Clare Dove, clare.dove@futurenet.com
Ad Manager: Andrew Tilbury, andrew.tilbury@futurenet.com
Senior Sales Executive: Daniel Fitzhenry, daniel.fitzhenry@futurenet.com
Senior Sales Executive: Leon Stephens, leon.stephens@futurenet.com

MARKETING

Campaign Marketing Manager: Charlotte Pratten, charlotte.pratten@futurenet.com
Promotions Executive: Rebecca Hodges, rebecca.hodges@futurenet.com

CIRCULATION

Trade Marketing Manager: Verity Cooke, verity.cooke@futurenet.com

PRINT & PRODUCTION

Production Co-ordinator: Frances Twentyman, frances.twentyman@futurenet.com
Production Manager: Rose Griffiths, rose.griffiths@futurenet.com
Head of Production: Richard Mason, richard.mason@futurenet.com

LICENSING

Head of International Licensing: Tim Hudson, tim.hudson@futurenet.com
Tel: +44 (0)1225 442244 Fax: +44 (0)1225 732275

FUTURE PUBLISHING LIMITED

Associate Publisher: Rob Last, rob.last@futurenet.com
Publishing Director: Mia Walter, mia.walter@futurenet.com
Chief Operating Officer: Simon Wear
Chief Executive: Robert Price

SUBSCRIPTIONS

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welcome

If someone had told me ten years ago that we'd be reviewing mobile phone applications in *Computer Music* (and even *making* them) by the end of the decade, I'd have declared them quite, quite mad. Yet here we are, and there it is – the iPhone, already a regular fixture in the magazine, and this month dominating the cover.

Our *Mobile Music* feature (p22) has been put together to bring you up to speed with the current range of options available for taking your production endeavours 'on the road', including the ubiquitous netbook, Sony's PSP, Nintendo's DS and the aforementioned blower. We're not suggesting that you're going to want to sell your studio PC any time soon and go 100% handheld (although it wouldn't be *completely* outside the realms of possibility), of course, but we are unequivocally saying that these diminutive devices offer a compelling array of amazingly usable, sonically potent, genuinely high-quality software to keep you musically engaged when you're out and about.

Mobile technology is an incredibly exciting area for people in all walks of life. However, for the musician in particular, by the end of the next decade – who knows? – it might have proven to be a complete game changer.

ENJOY THE ISSUE...

Ronan Macdonald **Editor**



The cm Mission Our goal is to help you create great music with your PC or Mac. With that objective always in mind, we bring you step-by-step tutorials on all aspects of software-based music production, unbiased reviews of the latest products, technical Q&As, and a Dual Layer DVD-ROM packed with exclusive software and samples.

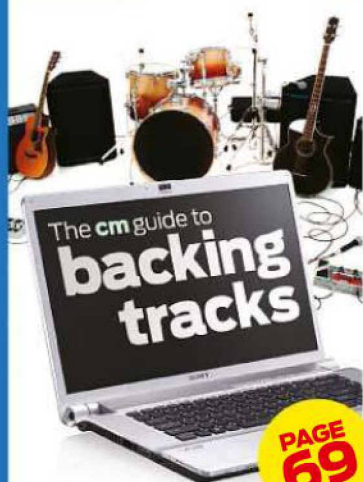
SUBSCRIBE AND SAVE! SEE P19



cm/contents

Mobile music

Tiny netbooks, multitouch smartphones and handheld games consoles are making pocket-sized music production a truly viable option at last. Our extensive guide kicks off on **p22**



51— MASTERING FOR BEGINNERS

Give your productions that professional sheen

60— THE CM GUIDE TO HIP-HOP VOCAL PRODUCTION

Record and mix the sickest rhymes and catchiest vocal lines

69— THE CM GUIDE TO BACKING TRACKS

Turn your laptop into the ultimate live backing band



PAGE 80

80— THE CM INTERVIEW

Veteran producer/engineer Gareth Jones gives us his take on modern music-making

Tutorials

46— PRODUCER MASTERCLASS

In the studio with ace dance producer Phonat

74— TOTALLY TRACKERS

Exploring Psycle

75— THE EASY GUIDE

We take a first look at the harmonic series

76— OFF THE DIAL

RachMiel brings out your 'beginner's mind'

78— SOUND ESSENTIALS

Scot's remit broadens into general sound design

114— Q&A

Readers' production problems solved

120— CM FOCUS

Everything you need to know about breakbeats



DJ Shadow knows a thing or two about slicing beats, and so will you...



Here comes a new challenger: we test PreSonus's brand new DAW on p90

Reviews

88 NATIVE INSTRUMENTS KONTAKT 4

The king of the samplers gets some new features

90 PRESONUS STUDIO ONE

Taking on the big boys with this brand new DAW

92 CAKEWALK SONAR 8.5

A paid-for point release? Have Cakewalk gone mad?

94 IZOTOPE ALLOY

Applying their Ozone magic to the humble channel strip

96 CYTOMIC THE GLUE

Bus compression plug-in that's not to be sniffed at

97 INTELLIGENT DEVICES SLIP-N-SLIDE

Audio manipulation tool for those seeking randomness

102 D16 GROUP TORAVERB

A reverb that'll have you praying for more

103 ROB PAPEN RP-VERB

Ambience plug-in from the Dutch synth developer

104 SCAN 3XS P55 LITE DAW

We put this high-spec music PC through its paces

106 MINI REVIEWS

A rapid run-down of sample packs, ROMplers and more

110 CM RECOMMENDS

Our must-buy products



WIN!
 BRILLIANT
 CAKEWALK
 BUNDLE
 PAGE 85

Essential cm

6 INBOX

8 NEWS

12 THE BURNING QUESTION

18 FREeware NEWS

19 SUBSCRIBE

112 USA SUBSCRIPTIONS

113 BACK ISSUES

130 NEXT ISSUE

cm DVD CONTENTS

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P36 Creating rhythm tracks couldn't be easier with EZdrummer Lite

36 FULL SOFTWARE

Toontrack's awesome EZdrummer Lite is the star attraction this month, but your **cm** DVD also boasts full versions of brainworx's bx_cleansweep, Togu Audio Line's TAL:Reverb and Meatscience's Bitsmacker

37 DEMO SOFTWARE

Try out the very latest software releases, with demo versions of D16 Group's Toraverb, iZotope's Alloy and a triple-whammy from Intelligent Devices



P37 Try the demo of iZotope's excellent channel strip plug-in, Alloy

38 TOONTRACK EZDRUMMER LITE

Get into the groove with our indispensable guide to this great virtual drum kit software

41 SAMPLES AND VIDEO

2032 uplifting samples, plus dance maestro Phonat on video!



P41 Watch dance guru Phonat on video in *Producer Masterclass*

42 CM STUDIO SESSION

We plumb the depths of the **cm** Studio's KR-Delay, with a guide to creating spin delay effects



P42 Find out how to create spin delay effects with the **cm** Studio's KR-Delay

44 READER MUSIC

Rating the **cm** massive's latest efforts

PDF GUIDES FOR NEWCOMERS

If you're a rookie, check out the **CM** Beginners folder on the DVD - a library of material put together to help you get your head around many basic computer music concepts

cm/inbox



Throw your thoughts our way – email cminbox@futurenet.co.uk

Message of the month

I'd just like to express what a godsend this magazine is for me as a resident of the US. There are many benefits to living in the States, but our media's coverage of electronic music is definitely lacking. While the roots of today's electronic dance music are here in the States, no matter how hard an electronic artist works in this country, they can never gain the amount of publicity thrown upon even mediocre rock bands or MCs. The word 'producer' in this country, when used to describe someone who writes their own music via synthetic instruments, is almost exclusively synonymous with hip-hop. In fact, due

to the prolific nature of hip-hop, most of the UK's urban genres, such as drum 'n' bass and dubstep, go entirely unnoticed by our mainstream media. I'm sure most citizens of the UK would have no trouble identifying Dr Dre, yet

you'd be hard pressed to find an American who can tell you who Grooverider is.

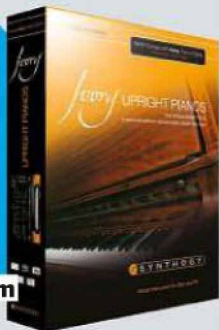
As a fan and producer of electronic music, I ditched expensive audio courses steeped in mic placement and recording rock guitars, because I can learn so much more about what's relevant to my studio techniques from your magazine, at a fraction of the cost! I dare say my production techniques have not merely doubled, but quadrupled since a friend introduced me to *Computer Music*, and your unbiased software and sample reviews keep me steered in the right direction in a sea of options.

Although I may not achieve great success in my country, there is always the possibility that I might develop a following across the pond, and that's enough motivation for me!

Ian Sutcliffe, San Diego, USA

America's such a huge country that I guess it's just difficult for any new, non-commercial music scene to gain traction and draw significant attention away from the big-bucks stuff. Stay positive, though – we're a global village now, after all, so physical location needn't be a barrier to creativity. *RM*

The writer of our Message of the month will receive a copy of Synthogy Ivory Upright Pianos for Mac and PC, worth £190, courtesy of Synthogy and www.timespace.com

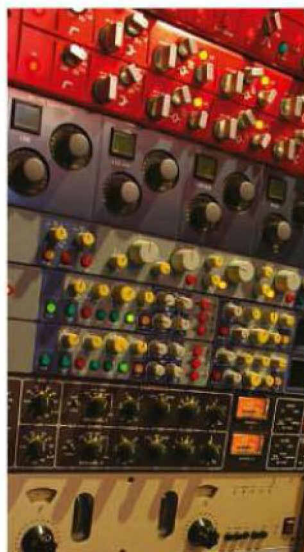


Soft in the head

Well, I've gone and done it – I've finally sold the last of my studio hardware and am now 100% 'soft'. So far I'm finding I get quite a bit more done, but I'm missing the sound of my analogue compressors, EQs and synths. Tell me I've done the right thing...

Declan Archer, Rotherham

You've absolutely done the right thing, yes. The quality gap between hardware and software signal processing is all but irrelevant these days, as we'll be proving in cm next month. You're probably just missing the psychologically significant physicality of your hardware, not its actual sound. RM



You don't need all this stuff to make release-quality tracks any more

Selling out

In *cm*143, you published a letter about not finding the time to be able to write music. I can relate to this, but another issue has been at the forefront of my mind: making money off the music I have created to date.

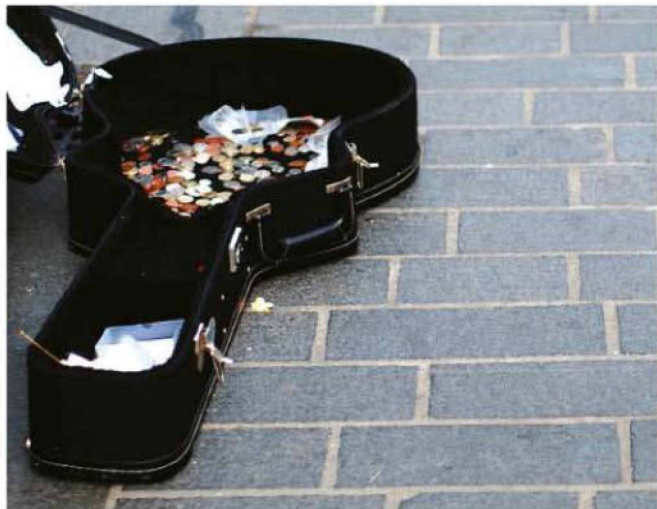
We have something similar to PRS for Music in Canada, called SOCAN, but they require – from what I understand – professionally published music. This doesn't really help the indie musician writing and sending out music from his living room. I've attempted to sell through www.undergroundmusix.com, which takes 50% of the sales. After four or five months of plugging away at this, I received a cheque for a whopping \$2.98 – I still have it on my fridge as a memento. It would probably

cost more for me to cash the cheque than I would get out of it. I've even hit the streets with a co-contributor of mine, and saturated the area with our music, with marginal success – but our sales came to a slow trickle quite quickly.

What I need are some pointers on how to gain a steady flow of income from the music I have put together, so I can focus on writing new music.

Matthew Archer, Ottawa, Canada

Thanks to the miracle of online distribution, today anyone can potentially make money with their music – but that doesn't mean it's a simple matter of uploading a couple of tracks and waiting for the cash to roll in. Clever marketing,



Thanks to the internet, everyone has the means to make money from their music

persistence, PR and, most importantly, great music are more important than ever. As it happens, we're currently putting together a *CM Special* on exactly this subject - the turning of tunes into cash. It'll be out on February 10 and should give you all the answers you're looking for. **RM**

Zen teachings

On simplifying life:

1. The college department where I teach was using several Pro Tools rigs to teach broadcast students how to do audio podcasts, but the learning curve and hardware issues kept us from producing fast and efficiently. After much contemplation and debating whether the students must learn 'the industry standard', we tried Garageband. The students haven't looked back ever since. No hardware issues. No dongles. No problems. Students happy. Teacher happy.

2. As a live classical recordist, I had been using multitrack software to do basic stereo

"It's nice to hear people say, 'You did this on that?'"

recordings. It was becoming an expensive venture, because I always wanted the latest upgrade, though the newest features were unnecessary in my line of work. One time, I was forced to work on a machine that only had a free stereo recorder and a couple of plug-ins. Surprise, surprise - equally excellent results. Easier set up. Goodbye multitrack upgrade.

I still use several DAWs when

producing, but I have learned to keep an open mind when it comes to using a simpler setup. It's always nice to hear people say, 'You did this on that!?'.

Reev Robledo, Manila, Philippines

Good music's good music, no matter what's used to make it - a fact that can be all too easy to lose sight of in the digital age. If you find yourself spending more time being a technician than a creative musician, try stripping back your setup, as Reev describes - it's almost always a beneficial exercise. **RM**

Blimey O'Reilly

Just wanted to thank you for mentioning Nuclear O'Reilly and our iPhone album in your October issue.

We're enjoying the mag over here in NYC. We were very interested in the *Message of the Month* regarding quality of musicianship and a call to independent musicians to use their freedom to break ground and bring more quality to bear. We hope you'll continue to be a resource for those of us trying to fight the good fight for many years to come!

Jared DiDomenico and Brad Naprixas, Nuclear O'Reilly Music, New York, USA

For those who missed it, Nuclear O'Reilly released the world's first album made entirely on an iPhone earlier this year, using Intua's BeatMaker (featured on the cover of this very issue) to do it: nuclearoreilly.com. Now turn to p22 to find out how you can have a go at doing the same thing yourself... **RM**

1000+ free sounds

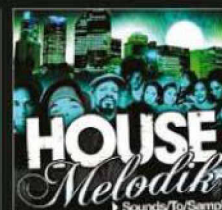
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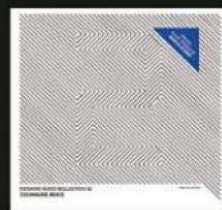
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Sample Magic Sunrise Sessions 10/10 CM REVIEW

1,000+ blissed-out beats and lo-fi loops, with drums, sax, percussion, keys, strings, trumpet, bass, guitars, glocks, synths and more. 950+MB total content. **£44.95**



Industrial Strength BHK DnB Special Edition 2

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rv_samplepacks Thomas Penton's Essential Series, Vol. 2: Loops and effects

100s of beat and perc loops - including bongos, congas, fillers, tops, hats, kicks and 115 massive dance-primed FX. **£29.95**

www.soundstosample.com

cm/news

NEW RELEASES > COMMENT > INDUSTRY HAPPENINGS

Here come the drums

We round up the latest state-of-the-art percussion software to hit the market

> The world of software percussion has been very active of late, with a number of notable new products announced...

First up, from MeldaProduction comes MDrummer 3, the latest version of their virtual drum kit and loop playback software.

Included with v3 is MTotalDrums, an expansion pack containing almost 60 new kits and 1.5GB of samples. MDrummer 3 is available for download now, priced €149.

www.meldaproduction.com

Next, WaveMachine Labs have announced v5 of Drumagog, their drum-replacement plug-in. Its new Auto Align 2.0 keeps replacement samples in phase when blended with original hits, while Direct Plugin Hosting enables VSTi's to be hosted by the software.

Drumagog 5 for PC and Mac is out in Q1 of 2010. No price has been announced yet.

www.drumagog.com

Slate Digital enter the drum-replacement market with Trigger, offering layered playback of sampled Steven Slate drum sounds. There are two modes of operation: the "no-latency" Live triggering system for use on-stage, and the more detailed Accurate mode for the studio. Slate say you can expect "tight, sample-accurate drum triggering without unwanted mistriggers, flammings or phasing". At the time of writing, however, no release date or pricing information had been made available.

www.slatedigital.com

Finally, Audio Damage have unveiled their new drum synth/sequencer, Tattoo, which the company describe as "a button-masher's wet dream." It has 12 voices, a sequencer, randomisation and parameter sequencing. Tattoo is said to be "coming soon", and the price is currently unconfirmed.

www.audiodamage.com

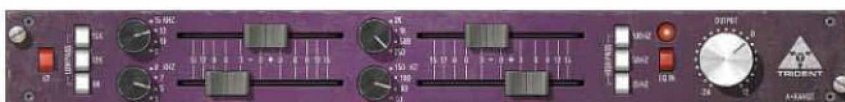


Clockwise from top left: MeldaProductions MDrummer3, Audio Damage Tattoo, WaveMachine Labs Drumagog 5 and Slate Digital Trigger

UA are Trident tested

> Universal Audio have released version 5.5 of the UAD software for their UAD-1 and UAD-2 range of DSP cards. The update includes a new processor in the shape of a Trident A-Range Classic Console EQ.

The original Trident A-Range desk was heralded for its quality preamps and colourful EQ section, and was used on massive records by David Bowie, Lou Reed and Queen. The modelled software version



Universal Audio's latest UAD update includes the world-renowned Trident A-Range Classic Console EQ

features four bands of active EQ, each with adjustable bell and shelving options.

The UAD 5.5 update is downloadable now. To use the Trident A-Range Classic

Console EQ beyond the 14-day demo period, you'll need to buy it for \$249.

www.uaudio.com

Eigenlabs harp on

Two bizarre new instruments from Devon, of all places...

> After working for eight years on a whole new type of controller instrument, Eigenlabs have finally revealed the fruits of their labours. The two models to be released are the flagship Eigenharp Alpha and the diminutive and much more affordable Eigenharp Pico.

The Alpha (pictured) features 120 extremely sensitive keys at the top, plus 12 "percussion" keys lower down - so called because they're been made slightly tougher to withstand harder taps and hits. Each of the keys can detect finger placement to within one micron (about the size of a single bacterium) and respond to up and down movements for controlling pitchbend, vibrato and so on, as well as side to side movements for articulations such as the opening and closing of a filter. Further control is offered via the breath pipe near the instrument's 'headstock' and two leather strip controllers along either side of the 'neck'. There are also microphone and headphone sockets on the unit.

The supplied 6m cable hooks Eigenharp Alpha up to its Base Station, which is in turn connected to your computer via USB. The software comes on an 8GB USB stick, featuring many factory setups and editing tools. The users can control their sequencer and plug-ins with the instrument, or play the supplied cello, clarinet and synth sounds, drum loops (1500), or Piano, Rhodes and Wuritzer

"The most revolutionary new musical instrument of the last 60 years has arrived"

Eigenlabs



Eigenlabs new Eigenharp Alpha looks complicated, but the company say it's incredibly easy to learn

multis from Sampletekk.

The cut-down Eigenharp Pico has 18 playing keys, four mode switches, a strip controller and breath pipe. This model connects straight to your computer via USB.

Eigenlabs' Eigenharp Alpha will set you back a cool £3950, whereas the Eigenharp Pico is retailing at the far more affordable price of £349. Both instruments, currently Mac-only (PC compatibility is promised for the future), should be shipping in December.

www.eigenlabs.com

Mixdown



Our Deputy Editor ponders whether he'll ever encounter a true dream machine

> A curious conundrum arose in the **cm** office this month over the Scan 3XS P55 liteDAW reviewed on p104. The puzzler is thus: if Scan's computer is spot on, with hardly anything against it, why doesn't it get a 10/10? We all agreed that, while there's technically nothing wrong with the system

"The customer should reasonably expect a computer to work perfectly"

in question, for a computer to score full marks, it would have to have something a little special about it.

When assessing music software, there's a qualitative and artistic aspect to it, but a computer is basically a tool that either works or doesn't. The 3XS P55 liteDAW worked perfectly well during our review period, so as far as Scan's choice of components and testing goes, I guess I'd give 'em a 10/10. But like software, the customer should reasonably expect a computer to work perfectly - if not, there's something wrong - so it's not really a cause for celebration when something does what it's supposed to.

I think I'd expect some sort of innovation in order to dish out a top score to a computer. Considering the special acoustic requirements of a music computer, then, perhaps a system that was truly silent yet powerful enough for full-on productions might warrant full marks (I certainly don't expect absolute silence of a music computer, by the way).

Another point is that I'm not sure it'd be right to award a computer from a system builder top marks for their use of off-the-shelf parts that other builders might use too. For this reason, perhaps only a computer coming from a major computer manufacturer such as Dell, Asus, or indeed Apple could send our score-o-meter soaring all the way to the top, since they could incorporate some crafty custom technology that no one else has access to.

Of course, we're not suggesting that computer builders and manufacturers have any responsibility to dazzle us with innovation - power, stability and quiet operation are quite enough. Perhaps I'm expecting too much and will never find a computer that's worthy of a perfect 10.

Lexicon's hall of fame

New reverb plug-ins from legendary hardware manufacturer

> They're famous for their hardware reverb units, and now Lexicon have released the PCM Native Reverb Plug-in Bundle, featuring seven ambience effects.

The bundle comprises Vintage Plate, Plate, Hall, Room, Chamber, Concert Hall and Random Hall units, each offering hundreds of "brilliantly crafted" presets, full parameter control and automation.

Lexicon's PCM Native Reverb Plug-in Bundle is out now for PC and Mac, for, ahem, \$1899. No, there's no missing decimal point.

www.lexiconpro.com



The PCM Native Reverb Plug-in Bundle offers that Lexicon sound to those with money to burn



Block rocking beats

New monome-esque controllers from Livid Instruments

> Livid Instruments have released two beautifully hand-crafted, USB-powered and fully programmable MIDI control surfaces: Block (pictured above) and Ohm64.

Block features 64 back-lit "clip-launch" buttons, eight knobs, seven function keys and two sliders that can all be assigned to perform a variety of functions in any MIDI-based software. The company reckon that the controller, with its bidirectional communication, is particularly suited for use with Ableton Live, Max/MSP, VJ applications and their own open-source software (which includes synths, samplers and sequencers), but say that it'll work with any program that receives MIDI messages. Also included with the control surface is the blockEditor, for

changing the MIDI assignments of all buttons, knobs, sliders and, intriguingly, LEDs. This last could be particularly useful when it comes to designing step-sequencing tools, for example.

Also available from Livid Instruments is Ohm64, a larger model than Block, offering a few more control options. It has 75 programmable backlit pads (including six function buttons), 16 knobs, eight sliders and a crossfader. Like Block, Ohm64 comes with an editor application for changing the MIDI assignments of the controls and LEDs.

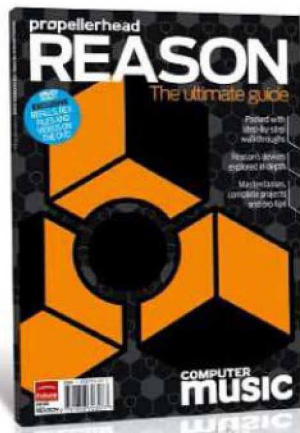
Livid Instruments' Block (\$399) and Ohm64 (\$599) are both available now in a variety of finishes for PC, Mac and Linux.

www.lividinstruments.com

Reason bookazine

> A collection of walkthroughs, tips and projects brought together from the pages of **cm** and **cm Specials**, *Reason: The Ultimate Guide* comprises 132 pages of essential reading for all users of Propellerhead's mighty software studio. No stone is left unturned as we shine our tutorial spotlight on just about every aspect of the program, while the accompanying 4.3GB DVD plays host to exclusive ReFills, REX files and videos from the likes of Loopmasters, T+S, Equipped, Propellerhead and Ask Video. It's on sale now at all good newsagents and online!

www.myfavouritemagazines.co.uk



Damaged



Give a warm, slightly nervous welcome to Chris Randall, our incendiary new columnist

> In a fit of questionable judgement, *Computer Music* have seen fit to give me a monthly column. It was suggested that I should introduce myself for this first instalment, so here's a miniature biography of Chris Randall:

I was the lead singer of 90s industrial band Sister Machine Gun. When, after seven albums and a few thousand live shows, I discovered that it's not so easy to pay the rent kicking a dead horse (industrial music), I turned to building software, and now I'm the co-owner of Audio Damage and making music as Micronaut and RT60. Here are a few things that I believe about our industry:

I believe that when you buy a new synthesiser or effect, you should delete all the factory presets.

I believe that the old ways of distributing music as a product are useless, but the good

"When someone has a problem with their PC, saying "get a Mac" to them really isn't helpful"

new way hasn't been thought of yet.

I believe that cheap Chinese-made gear for everyone is a good thing, but well-built American- and European-made gear is a much, much better thing.

I believe that just because you can't do something doesn't necessarily mean you shouldn't at least give it a whirl.

I believe that 'new' doesn't always mean 'better'. It just means 'new'. I also believe that 'vintage' doesn't always mean 'better'. It usually just means 'old'.

I believe that "phatt" isn't a word, and we should never, ever speak it again. Ever.

I believe if a hardware Neve EQ actually sounded like some of the plug-ins that carry its name, I'd send it in for service.

I believe that when someone has a problem with their PC, saying "get a Mac" to them isn't really very helpful. And vice versa.

Finally, I believe it's a wonderful time for musicians, with all that sound out there and all possible manners in which to control it.

I believe I'll go write a song now.

Chris Randall is the co-owner of Audio Damage, Inc, and proprietor of the Analog Industries blog, on which he regularly pulls no punches.

www.audiodamage.com
www.analogindustries.com
Twitter@Chris_Randall



Plogue chip away

A new synth from the makers of the Aria engine

Plogue's chipsounds recreates many of the famous sound chips of yesteryear



> Plogue Art et Technologie, creators of the modular routing software Bidule and the Aria engine used in Garritan's orchestral products, have released **chipsounds**, a virtual instrument modelled on the sound chips used in 70s and 80s videogame consoles, home computers and arcade machines.

Plogue haven't just been busy recreating the sounds and idiosyncrasies of old 'puters, though, as chipsounds goes much further than mere emulation. Up to eight separate chips (based on those used in the Atari 2600, ZX Spectrum, Nintendo Gameboy, Commodore 64 and Nintendo Entertainment System, to name but a few) can be combined in the Mixer section, with each layer containing volume, detune, reverb and pan settings.

The next section, Controls, enables the adjustment of certain characteristics of each chip - for instance, the Gameboy chip features pulse width modulation and a drawable waveform - as well as a wealth of

parameters for adjusting the wavesequencing and arpeggiation that are, of course, vital to that chiptune sound.

The Modulation section is where you'll find pitch modulation, portamento, and pitch and volume envelopes for each of the eight layers. There's currently only one processor in the effects section, a global reverb, for which each layer has its own send control in the mixer section.

Plogue's chipsounds is available now for PC and Mac, priced £60.

www.plogue.com

"It turns your VST/AU/RTAS host into a classic videogame console or vintage 8-bit computer"

Plogue Art et Technologie

Trackers & Demoscene



Psycle updates and a new app that promises to bring the demoscene to hand

> Having previously reported that Jaz is winding down his maintenance of the Psycle project, we can now bring you some better news: a new version of Psycle! Although it's not a big new feature release, it includes numerous updates and important bugfixes that have accumulated in the software. Psycle 1.8.6 is the first update to the modular music studio we've seen in a long while, so here's hoping we can bring you more news in the near future. Head to psycle.pastnotecut.org for more info.

"Although it's not a big new feature release, Psycle 1.8.6 includes numerous updates and important bug-fixes"

With thousands of apps available for the iPhone, it's mildly annoying that not a single one has brought the demoscene closer to the palms of our hands. So it was with some excitement that we discovered the boys at Demoscene.tv are working on an app to do just that. It's not due for release until the end of the year, but eager beavers can register for the beta version now at www.demoscene.tv.

DEMO OF THE MONTH

Blunderbuss by Fairlight

Masters of the demo, Fairlight take a break from their urban-themed hip-hop grind and present the demoscene with a well needed breath of fresh air. Released at the recent Main 2009 party in Arles, France, *Blunderbuss* is a one-trick pony of particles smoking gracefully across the screen to form shapes and words, accompanied by a beautiful acoustic track from Henrik Jose. This one is definitely worthy of your time, so check out the link on the **cm** DVD.



Word up: Fairlight's excellent demo, *Blunderbuss*

Ride the Waves

> Prolific plug-in merchants Waves have announced their latest, **Vocal Rider**.

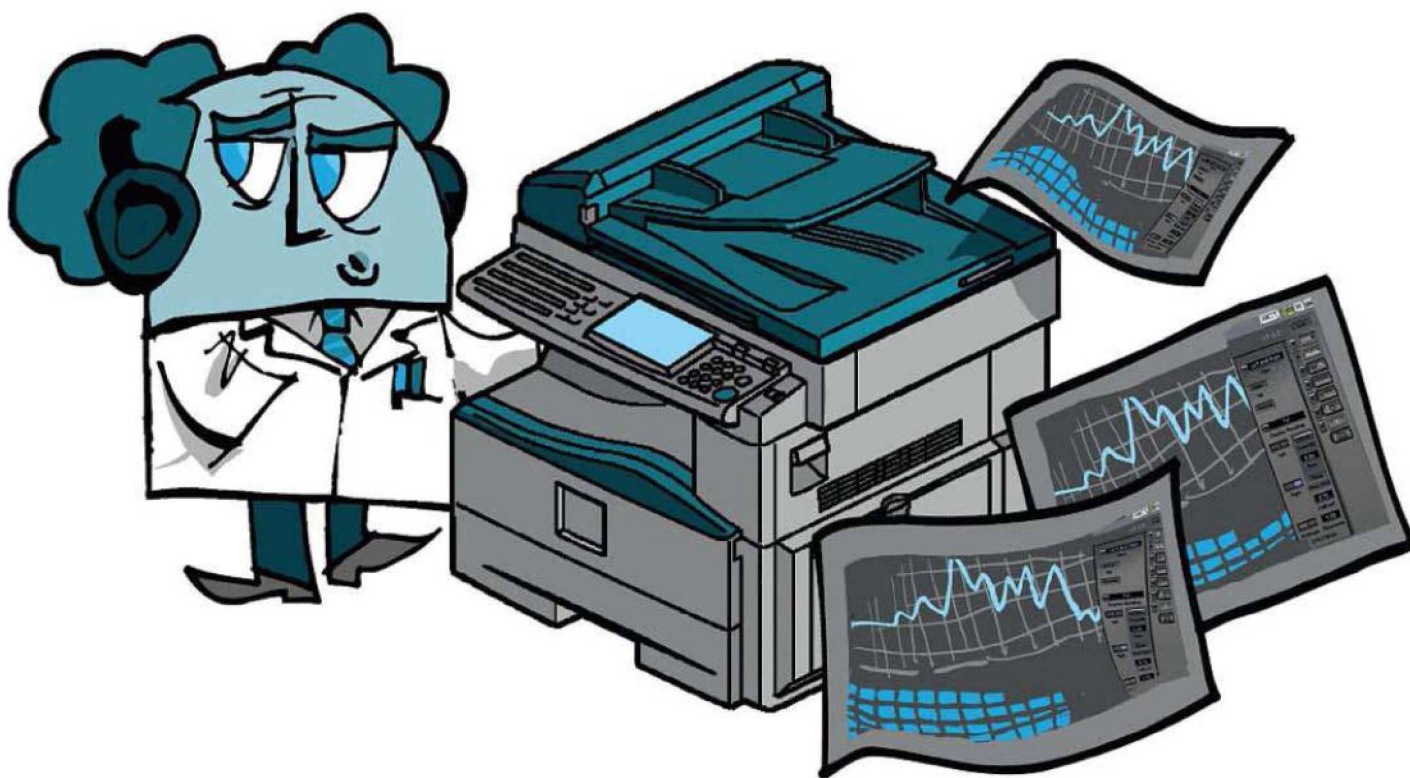
Anyone who's ever produced a vocal track will know the hassle of automating the level to make it sit nicely in a mix. To avoid this, you can place Waves' new plug-in on your vocal channel, plumb a summed instrumental bus mix into its sidechain input and let it adjust the vocal to remain at a constant level relative to the mix. All adjustments can be written into an automation lane for further tweaking, too.

Waves Vocal Rider will be in PC and Mac plug-in formats, but its release date and price were unknown at the time of writing.

www.waves.com



Take the hassle out of applying volume changes to your vocal tracks by letting Waves Vocal Rider do it for you



Are all digital EQs the same?

> In **cm144's Producer Masterclass**, DnB heavyweight Matrix explained that he "came across an article online claiming that pretty much all digital parametric EQs are the same" and is quite happy using the stock Cubase EQ. You can read one such article at bit.ly/3bF9K, which kicks off with that same provocative statement before going on to explain more fully what is meant by this.

It's a fascinating topic, for sure, and one that causes much debate whenever it pops up on music production forums, often accompanied by screenshots showing how EQ plug-ins from different manufacturers can be made to 'null out' - ie, settings are dialled in to give identical results (often with the aid of a spectral analyser), then the polarity of one of the channels is inverted and the channels mixed - if the result is

"I'd expect two (perfectly implemented) EQs to sound identical"

silence, this proves that the signals are identical.

The explanation put forward by some is that most digital EQs use the same algorithms for their basic filters. Some plug-ins go beyond equalisation with features like analogue-style saturation, but it's argued that you could

probably recreate these effects using additional plug-ins. To get to the bottom of the matter, though, we turn to those who really know this stuff inside out: DSP programmers.

Perfect curves

Jules Vleugels of 112dB knows a thing or two about EQ: his Redline Equaliser astounded us in **cm145**, where we awarded it a 10/10 score. So, Jules, how does one explain that many digital EQs are seemingly shown to be 'the same'?

"Ideally, an EQ only boosts or cuts according to its specification and leaves the audio intact otherwise," he begins. "In other words, you can fully describe any 'perfect' EQ by its frequency (and phase) curves. Therefore, provided you can accurately match those curves, I'd expect two (perfectly implemented) EQs to sound identical.

"Note that there is nothing special about this. Any well-implemented DSP process that you can fully describe with a fixed number of parameters should sound generic - no one would expect a gain plug-in to have its own unique sound! If anything, null tests indicate that current IIR EQs are equally well implemented."

IIR stands for Infinite Impulse Response - most 'normal' digital EQs can be described as such. Linear phase and convolution-based EQs (such as Redline Equaliser) are known as FIR: Finite Impulse Response.

Jules explains a little about the practical differences and why he went with FIR: "Both IIR

and FIR can sound great or terrible, and exhibit ringing or other artifacts depending on how well they're designed. What few people know is that ringing is also a matter of taste - and it's part of the sound of those famous analogue EQs too! We chose FIR mainly because of its additional flexibility, and spent a lot of time perfecting the filter architecture. The only real drawback of FIR is that it generates latency, and our Redline Equalizer is no exception to that rule. We do have ideas on how to bring down the latency down to near-zero but that's still in an experimental stage."

So back to the main topic of the much more common IIR-based EQs, and is it true that these use similar algorithms under the hood? "For obvious reasons, that's hard to tell, but said null tests definitely suggest this. The fact that their curves can be made to match is an indication because for any given frequency/bandwidth/gain setting, there's an infinite range of different bell-type curves (our Redline EQ provides a few variations). If null tests reveal two EQs' curves to be identical, this strongly suggests that the underlying architectures are the same (or at the very least, based on the same model).

"To understand why this is so commonplace, you have to realise that generic filter design is a complex topic and still pretty much a black art. The standard biquad [the common method of implementing digital EQ], on the other hand, is well documented and well understood, making it an obvious starting point for any EQ plug-in."

Tricky business

PSP AudioWare are one of the most respected developers of audio plug-ins, with EQs including MasterQ, Neon EQ and the more recent sQuad, which is a bundle of four analogue-style EQ units. Co-founder and lead developer Mateusz Wozniak tackles our burning question...

"This question is a bit tricky and it is great to

have the possibility to answer it," he begins. "I read several discussions on this subject and I have to agree that in some points the posts make sense, but the overall statement that all digital EQs are the same is not true.

"The majority of digital EQs are using the same equations for the bell-type filters," he confirms. "In this case, it's easy to get a null result for such filters... However, not all are really the same. For instance, the PSP preQursor and RetroQ don't do their bell filtering in the obvious way and it's not possible to recreate their middle filters using a single filter of a typical digital EQ."

"Most of the tests I saw were done using bell filters," notes Mateusz. "The shelving filters of most dedicated plug-in EQs have a complex response that cannot be recreated using typical equations. It is rather impossible to recreate the steep shelves of PSP's ConsoleQ or ClassicQ with single filters. Similarly, it is also impossible to simply recreate the middle filter and shelves of RetroQ, as it is working in parallel and has a weird configuration. The same with the preQursor - it is nothing like a single filter curve!

"Furthermore, some posts say that any analogue simulation, distortion, etc. can be done outside the equaliser with the same good results. In my opinion, this is not true because every such algorithm is different - some might be simple solutions on the EQ's output, but others might be built into the filters."

The Nyquist twist

Mateusz isn't done yet: "Most advanced equalisers are doing some kind of oversampling or other techniques to reduce the influence of the Nyquist frequency [*half the sample rate, ie, 22050Hz when working at 44.1kHz*], which has a real impact on magnitude and phase response for high frequencies. The difference can be highly noticeable, both audibly and in measurements, and can be observed in PSP MasterQ by toggling the FAT double-sampling.

"It is important to note that even if the corresponding setup of a general purpose EQ is made to meet another EQ, it's highly possible that changing just one parameter like the frequency, Q or gain of one EQ will mean reconfiguring *all* of those parameters on the other EQ. We are discussing here practical mixing tools - not laboratory equipment - so the effort required by the user to get the right sound is an important factor. Most analogue EQs are designed to provide the most musical result with minimal tweaking and this also occurs with many modern plug-in EQs, too.

"Finally, it's worth considering that even if you found a real null test using your general purpose EQ compared to your favourite reference EQ for all bands, how long did it take to set up such results? How much time did you spend tweaking a general purpose EQ for every track compared to a dedicated EQ? Switching from analogue to digital shouldn't double production costs and time, and shouldn't make the mixing harder. This was the best thing about analogue: the greatest gear was often the right choice not only because of its quality, but also because it was really easy to set up and sound right. Now let's do the same for digital mixing with the right plug-ins: let the user decide which plug-in is sounding the best to him/her, and which is the most practical solution." **cm**

Ins & outs

UNIVERSAL PHONE CHARGER

Mobile phones are a vital part of modern life, but incredibly, there's still no standardised charging format. However, the International Telecommunications Union has at last approved one, with a few manufacturers already signed up for the micro-USB-based system.



YOU2UBE

We'd be lying if we said we were avid U2 fans, but good on them for being the first band to stream a full-scale live concert via YouTube. By all accounts, it was quite a success.

PIRATES PAY UP

According to a poll of 1008 people in the UK, those who illegally download music also spend £77 per annum on legit releases, with just £44 from self-professed non-pirates. Clearly, the music industry is yet to adapt to the ways of today's music-lovers.

BURGER ME SIDEWAYS

What better way to promote a new PC operating system than with a special edition hamburger? We're talkin' 'bout the repulsive seven-patty Windows 7 Whopper, available at a Japanese Burger King near you.



PIRATES AT BAY

A Dutch court has ordered The Pirate Bay's founders to remove links from the notorious torrent tracker, despite the fact that they sold the site in 2006 and don't have access to it. Sounds daft, but they face fines of millions if they don't sort it in three months.

DIS-N-GAGE

Nokia say it's game over for their N-Gage games service, which has no doubt been defeated by Apple's App Store. And in related news, Nokia are suing Apple - they reckon Apple infringed patented Nokia technology in the creation of the iPhone.

Busting jargon



Computer music terminology explained. This month: **Floating point**

Last issue, we looked at the concept of bit depth, and talked about 8-, 16- and 24-bit audio, all of which are integer schemes. That means they use whole numbers: 0-255 for 8-bit and 0-65,535 for 16-bit (or the scale may be modified to encompass negative values too, eg, -128 to 127 for 8-bit).

While integer formats are suitable for storing/replaying digital audio, when it comes to the digital signal processing going on inside your DAW and plug-ins, a different type of digital number is used, called floating point. These have a number of advantages, mainly that they can hold a much wider range of values, and can represent fractional numbers (3.4, 40.997, etc).

When calculating digital audio processes, the numbers involved in the mathematics can be miniscule, but if not properly represented, the audio quality can be impaired. Floating point can easily handle small numbers, and it generally makes life a lot easier for programmers.

One neat property of floating point audio is that, as

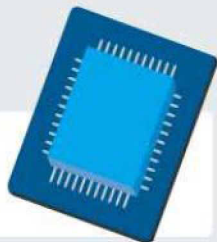
we said, values can also be very big. The upshot of this is that signal levels in most modern software can far exceed 0dBFS - that is, if the channels in your DAW go over 0dB, they won't actually clip. So long as you keep the master fader below 0dB (to avoid clipping your audio interface), you should be OK. However, while it's good to know this safety net exists, for various reasons, it's best to try and keep levels under 0dB.

Since audio inside your DAW is represented as 32-bit (or even 64-bit) floating point, if you want to render audio with 'perfect' quality (ie, for further processing such as mastering), save it in '32-bit float' format.



Some of these tracks are well into the red, but they're not actually clipping - only the master output channel can clip here

System check



Weird and wonderful goings-on in the wider world of computing



You could get a lot of plug-ins onto that 27" screen...

SCREEN IF YOU WANNA GO FASTER

Apple have upgraded their iMac range with larger widescreen models. The 20" and 24" machines have been replaced with 21.5" and 27" versions, boasting 1920x1080 and 2560x1440 resolutions respectively. The top of the line £1599 27" model is the first ever iMac to boast an Intel quad core processor – the 2.66GHz Core i5 as standard or the 2.8GHz Quad-Core Core i7 for an extra £160. Both versions feature integrated SD card slots, ship with Apple's latest wireless keyboards and multitouch Magic Mouse, and the 27" version can be used as an external monitor or HDTV (currently via Mini DisplayPort only, alas). The new iMacs can be loaded with up to 16GB of RAM and 2TB of storage, making them a tempting prospect for the power-hungry/style-conscious Mac musician. www.apple.com

3D LOVER

Apple's enormous 27-incher is mighty impressive, but Acer have an ace up their sleeve in the form of their new AS5738 laptop, which uses TriDef 3D technology to create an immersive multimedia experience using a combination of a special screen, software and glasses. The 15.6" HD display is coated with a special film that enables the stereoscopic rendering of images that work with the 3D polarising glasses. What's more, the TriDef software suite includes the ability to convert all programs built on DirectX 9 and above into 3D without the need for a new graphics card. The machine comes equipped with an Intel Core 2 Duo processor, 4GB RAM, ATI Mobility Radeon HD 4570 graphics card with 512MB of dedicated memory and, thankfully, the option to turn 3D mode off when it starts making your head hurt. www.acer.com

TRANSPARENTLY NOTHING

If all of the above wasn't enough to get your blood racing, how about the latest prototypes from LG and Samsung: transparent OLED displays? That's right – you can see right through the things, which were recently unveiled at the FDP International show in Japan. The LG model is the winner in terms of size at an impressive 15", with Samsung's palling in comparison at only 2". Although neither company have announced formal plans to put the devices into production, we love the idea of a laptop you can use while walking, eliminating the risk of falling down manholes or walking into lamp posts. www.lg.com
www.samsung.com

> news

C-Thru Music

Jacqueline Kandalaft

We speak to one of the Executive Directors of the company behind the AXIS line of MIDI controllers



Eye on the Industry

cm What is C-Thru's relationship with Peter Davies' Shape Of Music brand?

JK "The name AXIS was coined by the inventor of the Harmonic Table, Peter Davies. When designing the AXIS-64, C-Thru was aiming for a robust, high-quality instrument that could be made in a factory setting and developed on a limited budget. Once we'd designed it, Peter still felt he could come up with something closer to the best possible instrument. With his excellent pedigree as a luthier and skill at instrument building, it made sense for him to create a top-quality handmade instrument with all the

features he envisaged, under the Shape Of Music brand.

"Aside from its weighted and sprung keys, there are a number of additional buttons and features on Opal [*Shape Of Music's Harmonic Table instrument*]. C-Thru aims at the customer who wants an off-the-shelf product, whereas the Opal is an instrument made in a craftsman's workshop with the personal touch. We consider ourselves to be on the same team, and happily refer customers to each other when appropriate."

cm Does the AXIS have any 'celebrity' users or virtuoso players?

JK "There are a number of well known people using the AXIS, some of whom have given us quotes posted on our Talk page. Others include Warren G and Carmen Rizzo, who have commented to camera. There's not yet a virtuoso player such as Jimi Hendrix was on the electric guitar – we think it'll take longer than the two or three years Harmonic Table keyboards have been available to produce one. However, Jordan Rudess (Dream Theater) has a good grasp of the instrument, as does Dino Soldo who's been using it on tour with Lionel Ritchie and now Leonard Cohen. Robert Searight plays keyboards including the AXIS-49 in Snoop Dogg's band, The Snoopadelics, which was put together for the MTV show *Dogg After Dark*. Darren Price from Underworld uses his AXIS all the time, and he contributes to all of Underworld's compositions as far as we know – that's an example of where the

Harmonic Table is being used professionally, but not at the front of the stage."

"Darren Price from Underworld uses his AXIS all the time"

cm Will there be firmware updates for AXIS instruments, and, indeed, any new products?

JK "The potential for software

updates was designed into our products from the get-go. The AXIS-64 is on v4.2, which is very flexible. There is an AXIS-49 firmware upgrade being worked on that will renumber the notes so each key has a unique MIDI number (under the Harmonic Table layout, they don't). A number of people use the AXIS-64 for layouts other than the Harmonic Table and use software to map to the notes they require. The new firmware for the AXIS-49 will allow for the same facility, and it'll be more convenient for triggering events – eg, for DJs or use with Ableton Live, and for more esoteric projects such as microtonal music.

"For our next product, we're considering a device with a price point between the '64 and the '49. We like the product ideas people have posted on our forum; however, our current focus is on expanding our customer base and getting the word out about the Harmonic Table beyond professionals, rather than on product development."

Don't Slate the FG-X

> Slate Digital, founded by respected mixing/mastering engineer Steven Slate, have unveiled the FG-X Virtual Mastering Console, a mastering suite designed to increase levels transparently, without resorting to mix-crushing peak level limiting techniques.

The new software employs Slate Digital's Intelligent Transient Preservation (ITP) process, which combines lookahead transient detection with a "specialised set of saturation curves". This is said to mean that the software can identify, say, an oncoming kick drum transient, then apply a saturation curve designed to maintain the low-frequency energy during processing.

"Slate Digital Advanced Algorithms are written from the ground up using revolutionary new techniques in DSP code"

Slate Digital



Slate Digital's FG-X Virtual Mastering Console contains (from top to bottom) FG Dynamics, FG Level and a metering panel

There are two main panels (aside from one containing the meters): FG Dynamics and FG Level. The former, a mastering compressor, aims to transparently control your track's dynamics. Meanwhile, FG Level is a maximiser with Enhance and Detail parameters for boosting transients and adding transient clarity respectively.

It's unclear whether Slate Digital's FG-X Virtual Mastering Console will be sold as a bundle - there's no price or release date yet.

www.slatedigital.com

Soundware news

> Loopmasters have extended their Artist Series with **Mistabishi - Drum & Bass Vol 4** (£25), featuring 800MB of hits, loops, breaks and FX from one of the hottest and grimest Hospital Records DnB and dubstep producers. More drum 'n' bass action comes in the form of **BHK Special Edition Vol 2** (£13)

from Industrial Strength Records, with 178MB of drum loops, Reese pads, synth sounds and FX. Cluster Sound present **Minimal Torsion** (£20), comprising 560MB of construction loops, broken synth lines and assorted "grain loops" for minimal and tech house styles. Also in a minimal vein, and again from Cluster Sound, is **Minimal Darq** (£20), featuring 610MB of construction loops, synth sequences, dark pads and spectral voices for minimal house and electro music. From Push Button Bang comes **Rise** (£20), a library of 540 special effect noises for a range of dance styles that need risers, 'droppers' and other effects.

www.loopmasters.com

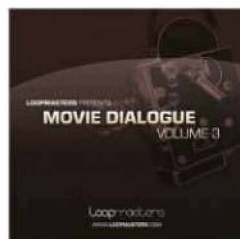


There are a couple of new expansion packs from Toontrack: for EZdrummer, we have **EZX Electronic** (£55), featuring 33 classic, circuit bent and resampled electronic kits for a variety of dance styles; while Superior Drummer users can enjoy **SDX Custom & Vintage** (£125), which brings together a huge collection of classic kits from the 1920s through to the present day. From Vir2 Instruments comes **World Impact: Global Percussion** (£259), containing 13GB of ethnic, world and cinematic percussion, including 4.2GB of Japanese Taiko samples.

www.timespace.com

Wolsfraektroes Music have released **Total Tech Grooves** (£12), which features over 300MB of drum loops, one-shots, FX and hits for tech house producers. Finally, from the Bluezone Corporation comes **Afro-Tribal Drumloops** (£16) - 300 African-influenced loops recorded at 136BPM, plus over 50 one-shot percussive hits, all "aimed squarely at the dancefloor."

www.soundstosample.com



News in brief

M-AUDIO BREATHE AGAIN

M-Audio have updated their Oxygen USB MIDI controller range. There are three models available, with the largest, the 61-key Oxygen 61 (£174), boasting eight knobs, nine sliders, transport controls and a DirectLink mode for easily mapping parameters in your DAW. There are also Oxygen 49 (£133) and 25 (£105) models. m-audio.com



DECAPITATING 'TOYS

SoundToys have two new plug-ins in the pipeline. First up, Decapitator is an analogue-modelled saturator, which can be used to "push it way too far" or add subtle warmth. There are five modes, plus mix, tone and drive controls. Second is PanMan, a rhythmic auto-panning device with a range of shuffled sync settings. SoundToys' Decapitator and PanMan are for PC and Mac, although no prices or release dates have been given. www.soundtoys.com



ELYSIA DRESS TO 'MPRESS

Based on the their "special character" mpressor hardware compressor, Elysia have released a modelled software version with the same name. The company claim that you can "create completely new signal envelopes" with its Anti Log release curves (for optional pumping effects) and fast attack times. Elysia's mpressor is out now for PC and Mac, priced €349. www.elysia.com



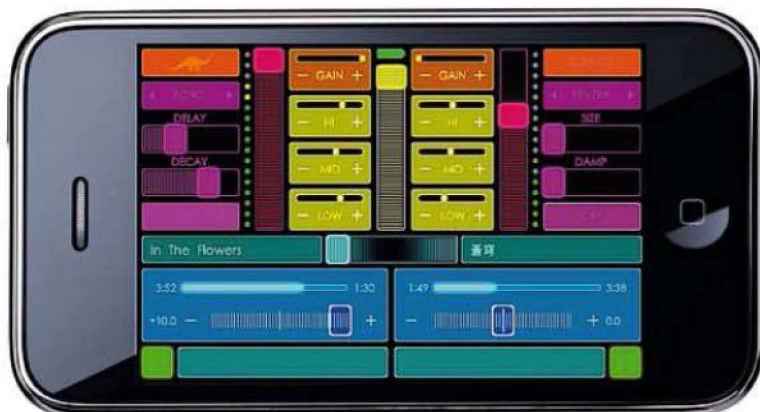
COMPETITION WINNERS

In cm144, we had three FabFilter Total Bundles up for grabs, and now we can reveal that the winners are: Simon Mannion of Wigan, Margaret Mulholland of Stoke-On-Trent, and Jen Eastham of Manchester. Well done, all!

Now turn to p85 to find out how you could win over a grand's worth of Cakewalk software and hardware!



Insight's BeatSequencer BoomBap offers many ways to build and tweak rhythm tracks



Pajamahouse Studios' Sonorasaurus enables you to mix tracks in real time

App watch

New music-making apps for iPhone/iPod Touch

> **WaveMachine Labs iGog: Massive Drums** is a multisample-based drum machine for iPhone from the makers of the acclaimed Drumagog drum replacement software. It features six kits, each using up to 384 samples (more are available online, and you can create and load your own kits in WAV, AIFF and GOG formats), alongside sequencing and export functions. The most intriguing feature is WaveMachine Labs' VelaUcity technology: the six pads are velocity-sensitive, with the strength of your tapping detected via the iPhone's mic - impressive. The hi-hat and ride pads also note tap position for further articulation.

Currently, iGog: Massive Drums (£2.99) is only available for the iPhone 3G/3GS, but an update is promised to bring iPhone 2G and iPod Touch owners into the fold.

www.wavemachinelabs.com

BeatSequencer BoomBap, from Insight, is a groove production suite for recording, sequencing and mixing up to 16 channels of audio. You can capture sounds via the mic or separate dock connector device, or plunder the included library of drum/FX samples, before creating patterns with the step sequencer or 16 real-time performance pads. There are five effects (Puncher, Delay,



WaveMachine Labs' iGog manages to bring velocity-sensitive drumming to the iPhone

Reverb, Chorus and Filter) for manipulating each sound, and songs can be put together using up to 50 patterns. They can then be bounced and emailed.

Insight's BeatSequencer BoomBap (£8.99) is available now from the App Store.

www.insight.fm

Last up, a DJ app from Pajamahouse Studios. Sonorasaurus enables you to upload tracks to your iPhone/Touch and mix them in real time with two virtual decks. The controls include pitch (with nudge), EQ, crossfader, effects and volume. The online videos look promising, but there's no release date or price info as yet.

www.sonorasaurus.com



Game overture



Legendary games composer, Inon Zur, whose recent work on Bioware/EA's *Dragon Age: Origins* has won him two industry award nominations

> The videogames music spotlight is currently firmly focussed on one Inon Zur, the world-renowned composer whose previous soundtracks include the likes of *Prince of Persia*, *Baldur's Gate II: Shadows of Amn*, *Crysis* and *Fallout 3*.

Zur has recently been nominated for two Hollywood Music in Media awards (Best Original Score - Video Game and, with Aubrey Ashburn, Best Original Song - Video Game) for his work on Bioware and EA's new RPG *Dragon Age: Origins*.

Famed for his expressive and cinematic scores, Zur draws on a wide toolkit of ethnic instrumentation, emotional classical orchestration and powerful driving percussion: he's truly a master of the dramatic. It's his bombardment of eclectic musical elements that make his scores stand

"He's truly a master of the dramatic. It's his bombardment of eclectic musical elements that make his scores stand out"

out; he cites Prokofiev, Brahms, Debussy and Stravinsky, as well as jazz musicians like Herbie Hancock, among his influences.

"From the moment you hear the *Dragon Age: Origins* theme to the lilting ballad, *I Am The One*, at the end of the game, Inon's score is hand in glove with the *Dragon Age: Origins* dark fantasy," said Simon Pressey, Audio Director for the game. "The score has an originality and passion to it that illuminates the story. I am continuously awestruck with Inon's ability to tap into the essence of a project. How he gets so much feeling into a melody is simply stunning."

The official soundtrack for *Dragon Age: Origins* is available to buy on CD and as a download now, and selected tracks from Inon's score are included in the *Collector's Edition* of the game (which in itself is also quite magnificent, we should add).



Game overture is brought to you by music4games.net, the ultimate games soundtrack resource
www.music4games.net

COMPUTER
music10 years
back

We hit rewind to see what concerned the computer musician in February 2000

> In a bizarre coincidence, this month's cover feature on mobile music echoes our lead article from ten years ago. **cm16's** *Lap dance: music on the move* dealt exclusively with laptops – of course, this issue's investigation focuses on much smaller devices, but back then, how to make music on a laptop was the most talked about subject on our forum. Our introduction to the piece advised that "If you don't have at least 128MB RAM, a colour screen, run at 600MHz, have 24-hour web access and a FireWire

"Needless to say, though, it looks truly feeble next to Apple's current laptop crop"

connection, then you can just forget it." Bar the FireWire port, that sounds pretty much like the iPhone 3GS!

Issue 16's *Burning Question* asked if the iBook was any good for music-making – it was a pretty cool machine back in the day, with its G3 processor, funky transparent plastic curves and carrying handle. Needless to say, though, it looks truly feeble next to Apple's current laptop crop.

Our interviewee for the February 2000 issue was DJ Rap, the feisty junglist producer, who was making inroads in America at the time, where she could "come off stage from a gig, get straight on the decks and play a hardcore jungle set in the same venue." Ah, the golden age of drum 'n' bass...



No, **cm16's** cover feature didn't show scantily-clad ladies, but how to make music on a laptop



Drive time

Umek

The celebrated Slovenian DJ, artist and producer gives us access to all areas of his music hard drive

APPLE LOGIC PRO

"I've tried everything else, but this is the sequencer that suits me most. It is user friendly, produces great sound and contains a very good bank of synths and plug-ins – it's the perfect choice for young producers. With Logic, you don't need anything else to get started: it contains everything, from the Ultrabeat rhythm machine, EXS24 sampler and electric piano, to a great vocoder and various synths... everything."

NATIVE INSTRUMENTS REAKTOR 5

"I use this program with Logic. I like the width of its sound and that it enables users to create their own synths from parts that are available on NI's homepage. If I'm not mistaken, more than 2000 synths and plug-ins are already available for download on the Reaktor page. These freaks from all over the world have some brilliant ideas, create unique sounds and make them available for others, like a software community for sharing weeks and months of hard work. Sure, 90% of the content's crap, but you'll discover that 10% of it produces some amazing sounds."

WAVES L316 MULTIMAXIMIZER

"This is a multiband limiter that I use for the final touch in my productions. I've tried

different limiters, bundles from Universal Audio, TC Electronic, Sony Oxford, Sonalksis, etc, but Waves is the one for me. It adds that little something to my sound, so I can't wait to see what the next upgrade will bring."

FUTURE AUDIO WORKSHOP CIRCLE

"The sounds are interesting and fresh, and you can combine digital ones with the analogues in a very specific way. The thing I

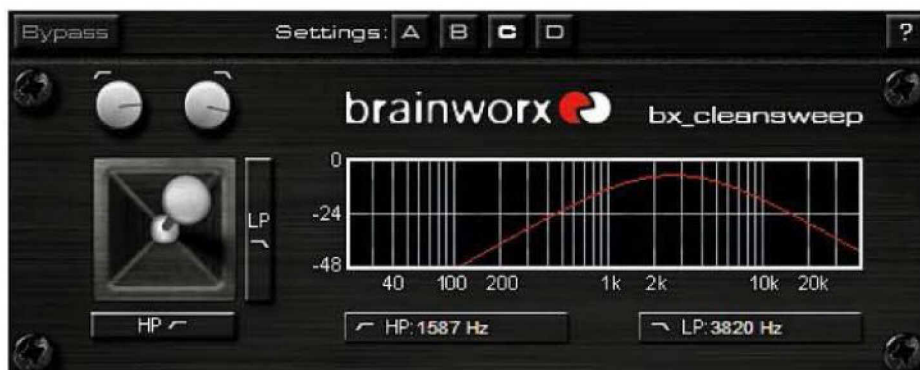
"These freaks from all over the world have some brilliant ideas"

like most is the LFO section. In Circle, you can mark LFOs on specific sounds, put two LFOs on one sound and even mix them. This is one of the functions I really like to use in my productions. Circle was one of the first programs with the ability to move the start of an LFO left or right on the oscillation curve and even mix two LFOs together. Another speciality is a rich bank of analogue waves that can be put together in millions of combinations. There's a sea of synths on the market, but Circle is one of the most innovative I've found so far."

Umek's new album, *Umek? Hell Yeah*, is out now on Hell Yeah
www.myspace.com/djumeck

bx_cleansweep

This unique plug-in will bring an experimental vibe to your filter sweeps and perhaps even help with mixing



Developer Brainworx
Format PC VST/RTAS, Mac AU/VST/RTAS
Web www.brainworx-music.de

Brainworx have developed some excellent commercial plug-ins – both bx_control and bx_hybrid are well worth checking out – and also released a few notable freebies in the shape of bx_solo and Dynamic Range Meter. Their latest freeware effort, bx_cleansweep, is no different, offering traditional filter functionality behind an unusual and highly innovative interface.

Comprising low- and high-pass filters, bx_cleansweep combines the controls for both in a single joystick-style controller. This makes it's easy to coordinate the movement of the filter cutoff frequencies in tandem, making it ideal for creative sound design and generating special effects.

We asked Brainworx's Dirk Ulrich if he's confident that the company's freeware releases increase the interest shown in their commercial software. "Absolutely," he affirms. "We receive great feedback from users, and many people get to know Brainworx through the freebies. Some of the ideas we have are also simple compared to what we sell, or they are important steps in the development of a new commercial tool, so why not use it and make everybody happy?"

What was the thinking behind the excellent bx_cleansweep?

"The idea is to use this plug-in for two main purposes: both as an 'effects filter' with the joystick, and as a serious mixing tool. I have

Example frequency ranges

VOCALS HP 50Hz - LP 22kHz	BASS HP 40Hz - LP 6kHz
KICK DRUM HP 30 Hz - LP 8kHz	ROCK GUITARS HP 50Hz - LP 16kHz
SNARE HP 100Hz - LP 12kHz	ACOUSTIC GUITARS HP 80Hz - LP 15kHz

been a professional producer for some 15 years and was missing these two filters all the time. Great consoles have them on every channel, and there's a reason for that! I honestly recommend one uses a high-pass and low-pass filter in every channel of your mix to clean the frequency range, even though you don't need to set the cutoff to extreme settings on most channels [see *Example Frequency Ranges for Dirk's suggested generic cutoff frequencies*]. The filters are taken from our new bx_digital V2, and we have put a lot of work into getting the frequency curve of the low-pass filter (in the highest range, around 16kHz-22kHz) to match an analogue EQ curve, which is very tough to do in digital."

What's the idea behind Dynamic Range Meter, another of your free plug-ins?

"It makes loudness and missing dynamics in mixes visible, and hopefully people will use it to make their mixes more dynamic. Personally, I like the idea of bringing the overall loudness down a bit and letting music breathe again..."

Viking hell

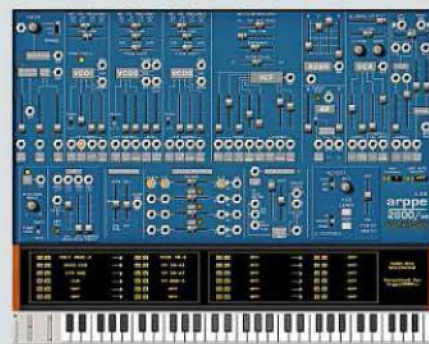
Valhalla DSP, the developer behind the amazing reverb algorithm used in Audio Damage's EOS plug-in, have released their own delay effect. ValhallaFreqEcho is a Bode-style frequency shifter and analogue echo emulation that's superb at generating extreme delays and crazy sound effects. The plug-in is available in VST format for PC, and AU and VST formats for Mac.
www.valhallaDSP.com

Ace DC

If you've got any pre-MIDI kit lying around, you might be interested in Sync Unit DC, a virtual instrument that can be used to trigger older synths. Check out the site for the plug-in and instructions on wiring up a cable to use with it. The software currently requires an audio interface with DC-coupled outputs and OS X, but the developer is working on an improved version.
matrixsynth.blogspot.com/2009/10/sync-unit-dc.html

Challenge accepted

The music software developers have once again risen to the challenge of creating a great freeware plug-in for the KVR Developer's Challenge '09. There are 42 entries this year, with contributions from the likes of Christian Budde, de la Mancha, spacedad, bootsie, Duncan Parsons and, of course, xoxos. Voting has already begun, so head to the site and get involved.
www.kvraudio.com



Freeware Classic Arppe2600va

Developer Richard Brooks and the VoltKitchen Group
Format PCVST
Web glenstegner.com/softsynths.html

Fans of freeware PC synths will no doubt be aware of the excellent MiniMogueVA by the VoltKitchen group. Less well known but equally worth investigating is Arppe2600va, an emulation of the classic semi-modular ARP 2600 synth.

"We like the fact that it packs a punch with very little CPU overhead"

We asked VoltKitchen member Glen Stegner what difficulties were involved in recreating such a classic synth in software. "The main challenge was the modulation matrix," he admits. "Version 1 didn't have this, but after I put it out, a fellow by the name of Gabriel Abney offered to create one. He has done other extensive and invaluable work on the Arppe2600va, including making the filters sound more like the real thing, adding a high-pass, and making the Voltage Processor section work as it should."

What Arppe features is Glen particularly proud of?

"The extensive oscillator and filter modulation, ring modulation and ability to modulate virtually anything with anything else make this a very flexible, distinctive synth compared with other freeware VSTs out there."

So, are there any plans to update the software in the future?

"There are no current plans to update it in any significant way. We like the fact that it packs a punch with very little CPU overhead. Adding fancy features, such as drag-and-drop patch cords would be cool, but would bog down the speed and responsiveness of the synth. We like to keep things simple but effective." **cm**



Mobile music

Today's 'must-have gadgets' are also powerful music production tools – here's what you need to know to take your tunes on the road

> **Mobile music production combines two of our most compulsive traits: the love of music technology and the love of music. For many of us, growing up in the 70s, 80s and even 90s, music-making on the go meant only one thing: the Portastudio – a device from a dark age of recording technology that didn't really include that much technology. Cramming four tracks of audio onto a single compact cassette, these devices could record multiple inputs through a crusty integrated mixer that enabled you to create a rough mix of your music as it happened, complete with hiss, fuzz, wow and flutter. It was the magic of mobility, the same number of tracks the Beatles used to record *I Want To Hold Your Hand*, and a low price that made the Portastudio a long-lived success. Until the digital recording revolution swept it away.**

Up until to relatively recently, our portable digital devices haven't had the horsepower to be able to compete with their office-bound counterparts, which meant there was always a

compromise. There were music-making applications for Nintendo's Gameboy, for example, and many of the earlier PDAs, but these often limited the music to a specific class and type. There was no escaping the 8-bit quality and low bandwidth of those early devices, and there was very little storage on offer. It was only when laptops became both affordable and fast that mobile music started to gain momentum, and musicians began to realise they could actually be productive while waiting for that delayed train to Paddington.

Music to go

The unrelenting march of Moore's Law has seen mobile laptop computing give way to smaller devices packing the same processing punch that laptops boasted only a few years ago. Portable games consoles are now a mere generation behind their noisy front-room counterparts, and mathematical functions such as mixing, synthesis and effects are very similar in CPU load to 3D game mechanics. Finally, we

can indulge in our favourite pastime while out and about. Instead of coming back to our main machines with a few simple ideas, we can now return with fully developed backing tracks, beats and even complete projects. Making music on the move is not only practical, it can give you a whole new angle on creation. Forget dragging that clunky laptop away for the weekend, complete with power supply, audio interface, application discs and case. Simply fill your mobile phone's memory card with compositional software and approach your music from a new angle. Rather than being a stop-gap, music-making on the go is finally becoming a vital part of the whole process. It's effectively a Portastudio revival!

With so many mobile solutions to choose from, this extensive guide will help you decide which hardware and software combination is the best for your needs. So read on to take your music production not just to a whole new level, but out into the countryside, across the ocean and into the clouds beyond.



Hardware overview: What's out there?

When it comes to mobile music-making, there's never been so much choice. This is because just about anything with a processor and some memory can be made to produce music, a point proven by the 8-bit aficionados still creating tracks on 80s-era Gameboys and the venerable Commodore 64. But the hardware that's relevant today needs to produce output of a high enough quality that you can integrate the audio into your own projects, and that means devices of a reasonable standard and specification. The ideal solution also needs to offer certain professional characteristics such as excellent stability, decent battery life and a large, supportive community. All of these elements have influenced which devices make it into our list.

One of two

Mobile hardware can be split crudely into two categories. The first takes the miniaturisation route, shrinking the applications and software we're used to onto diminutive versions of the same hardware. Both netbooks and Windows Mobile devices fall into this category, as do older machines running PalmOS, and they're the first platforms you should be looking at if you're

interested in recreating your home studio environment on the go.

Netbooks are simply small laptops, forgoing full-fat processors, gigabytes of memory, high-resolution displays and optical drives to offer excellent portability. As a result, they can handle almost any synths and software from three or four years ago, and many low-power

"Just about anything with a processor and some memory can be made to produce music"

applications will run unhindered. Windows Mobile devices, on the other hand, are more often labelled as smartphones. Many have slide-out keyboards and feature touchscreen, low-res displays. Newer devices are improving, but the majority of Windows Mobile units use a stylus as a portable mouse, reducing their potential as touch controllers. Software for Windows Mobile is usually of the cut-down

Windows variety, and the limitations of the screen restrict their potential as controller apps.

The second category involves taking your mobile setup in a different direction to your home one, adding more esoteric software and hardware to your compositional armoury. This combination won't be as capable as your studio setup, but it will make a worthy contribution by taking you out of your comfort zone and forcing you to attack your styles and sensibilities in a different way. This is the realm dominated by the iPhone and iPod Touch, but also inhabited by Sony's PSP and Nintendo's DS/DSi.

These devices aren't PC replacements, and developers are forced to think more creatively about input methods and the types of applications that are going to appeal to typical users. There's been a huge growth of such applications on the iPhone and iPod Touch – so much so that the App Store's Music category is now dominated by virtual drum kits, synthesisers and compositional tools.

Being games consoles, the PSP and DS may seem inappropriate as music tools, but they've both got thriving homebrew scenes and a small selection of exceptional commercial music tools. These, along with the possibility that you've already got a PSP or DS gathering dust somewhere, could be a winning combination.



Netbooks

PC power that can comfortably be used in Economy Class without breaking either the screen, or your bank balance



> Sitting somewhere within the Lagrangian point between laptops and PDAs, netbooks are usually PC-compatible but under-specified in comparison to modern laptops and desktops. They're also relatively cheap and rapidly evolving, which means if you're interested in buying one, you should scan the latest releases and offers before parting with your money.

Despite this, there are a few brands and ranges that have proved themselves in the two years since the netbook became the latest accessory, and you can usually depend on any new versions of them. If you're on a tight budget, we'd recommend looking at the Acer Aspire One. For the next step up, the Dell Mini 9 is a great choice, and if you're happy to spend more than £250, the LG X110 is even better.

The first thing to look for is the use of the Intel's Atom platform. This offers a subset of Intel's full-fat Core Duo functionality, with the addition of low-power modes and media acceleration. The Atom should run any of your normal desktop software, and most netbooks embed the 1.6GHz N270 within that diminutive chassis. You should consider this a minimum configuration and try to maximise the

onboard memory. Most bundle 512MB or 1GB of RAM, but you'll get much better performance with apps by boosting this to 2GB through the easily accessible port on the lower side of most models.

Storage consideration is next on the list, and netbooks offer either Solid State Storage (SSD) or a hard drive. SSDs are small and relatively expensive, but they give faster access and better battery life. Hard drives offer plenty of storage but the possible instability and power drain that all moving parts suffer. The best choice will depend on the type of music you're going to be making. If you need to record lots of audio, then you'll have to opt for a hard drive, as this is the only realistic option for a modest budget. If you're planning to hack away with software synthesisers, MIDI or trackers, then the limited capacity of SSD shouldn't be an issue.

Screen resolution

The most limiting aspect of netbooks is screen size. Most of them support a maximum resolution of 1024x600, which is just 120 pixels short on the vertical of what developers generally consider to be standard size for most

applications. Almost all models offer an external VGA port, which is handy for gigs, but hardly ideal for the train. Dell, HP and Lenovo all offer upgrades to a resolution of 1366x766, which is much more practical if you're planning to run your standard desktop applications on a netbook - but larger screens also mean lower battery life. If you're going to use your netbook in the field for playback and recording, you'll need an external audio interface. This almost certainly means you're restricted to USB, as the only possibility for FireWire is to buy a Lenovo S10 and an ExpressCard FireWire expansion. Fortunately, though, there are plenty of USB devices to choose from.

All that's left to decide on, then, is your operating system. Despite Microsoft promising positive things for Windows 7 on netbooks, it's still too early to tell if this is really a good combination, while, thanks to its relative bloat, Vista is a no-go. Which leaves you with Windows XP, or Linux if you're feeling adventurous. XP is the best choice for most because it's likely to be installed by default, has the best selection of hardware drivers and will run software from five years ago - perfect for the netbook studio.

Netbook accessories

NATIVE INSTRUMENTS AUDIO 2 DJ

With claims of being the world's smallest USB audio interface, Native Instruments' latest box is the perfect companion to your netbook, enabling you to bypass those interference-prone minijack ports and use its dual outputs to deliver pristine output for amplification or headphones. Combine this with some DJ software on your netbook and you've got a capable setup that's almost as small as the power supply for a mixer!

KORG NANO SERIES

Korg's excellent series of miniscule controllers are the perfect input devices for your netbook. At around 32cm long, they're actually 6cm beyond the width of the

average netbook, but they're eminently portable nonetheless. The three units available offer a MIDI keyboard, drum pads and an array of dials and buttons, making them a superb choice for controlling soft synths and mixing on the go.

MICROPHONE

The quality of netbook microphones is terrible, so if your music relies on capturing real-world audio, you'll need a better



These tiny controllers from Korg could be the perfect accompaniment to your laptop-based studio

solution. The easiest is a mic that outputs directly to USB, such as the USB Studio Condenser from Samson. This will enable you to make high-quality field recordings, although you won't be able to process the input sound in real-time - the limited CPU of a netbook combined with the USB bus usually means relatively high audio latency.

Software for netbooks

Thanks to their compatibility with PCs, netbooks can run almost any standard Windows or Linux software. You're obviously going to take a performance hit, due to their reduced power and specification, but the biggest problem for netbook users is, in fact, overcoming the limited amount of screen real estate.

It wasn't so long ago that the standard resolution assumed by developers was 800x600 – a resolution that fits onto your netbook's screen, and that you'd have to aim for Cubase VST-era software if you wanted to stay within the bounds of. This might not be as bad as it sounds, though. Just because you won't be able to run the latest and greatest plug-ins, doesn't mean you won't be productive. You should try and approach a new platform as you would a new synth – without preconceptions. Music is about experimenting and going with what sounds good, and that's no different on a

netbook to how it is on a £1500 desktop PC.

However, equally, you shouldn't let your netbook studio be defined by its screen resolution. There are still many applications that don't require a high-res display. Propellerhead Reason is workable, for example, although you'll find yourself scrolling up and down a lot. Modular applications are a better option. Try Native Instruments' Reaktor, Plogue's Bidule and XT Software's EnergyXT. The latter is a particularly good option because there's a version available that will run off a USB stick without installation, and even a Linux version. It's capable of recording, synthesis, mixing and composing, all from a window that scales well within the 1024x600 resolution of most netbooks. That makes it the ideal replacement for your desktop or laptop working

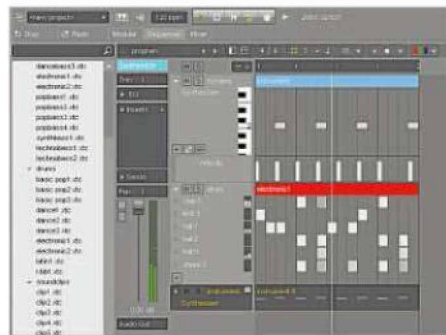


EnergyXT 2.5 will also run off a USB stick without actual installation – ideal for creating music on the go

environment, and unlike your regular DAW, EnergyXT's modularity is designed to make you think differently about how you construct your music, and how you can take a leftfield approach to getting the most out of your system's capabilities. If you want to give it a try, energyXT2.5 CM Edition is on the **cm** DVD.

> Step by step

EnergyXT on the small screen



1 > Thanks to its lack of eye candy, low resources and use of small fonts, we've found energyXT to be one of the best apps you can run on your netbook. Its internal windows will happily fit on that diminutive display, and thanks to its bundled library of clips and plug-ins, using it can be as simple as dragging and dropping.

2 > After launching energyXT and selecting the **Default** project profile, click the full-screen icon at the top right to make best use of the display. Open the **Loops & Clips** resource in the left-hand panel, hit **Play**, then drag a bassline, a drum loop and a melody onto the timeline.



3 > Minimise the **Sends** area in the channel strip to make the audio meter fit the screen, then use the zoom tool to magnify the clips. Modify the music by dragging the notes in the matrix view, and click **Synthesizer** on any of the channels to open the sound-editing window. Select a more suitable sound, or change the parameters for the current one.

4 > Add audio tracks by right-clicking in the arrangement window. If your hardware is correctly configured through the **File>Setup** dialog, you'll be able to record onto those same tracks. Click **Mixer** for an overview of levels and to add effects. Export your tracks using **Export** from the **File** menu.

Operating systems

There are essentially two choices as to which operating system you should run on your netbook: a variant of Microsoft Windows, or a version of the free Linux. It's possible to get Apple's OS X running on some netbooks, but the legality of doing so is ambiguous at best. Both Windows XP and Vista run quite well on netbooks, the former being the operating system of choice for most people. If you're restricted to SSD storage, you may have to get your hands dirty with some manual configuration to get a Windows installation working, but when you do, it doesn't eat up much storage space or memory, and has the largest possible library of music software to choose from.

Linux is an interesting option if you like playing with experimental software. It has the advantage of being free, stable and infinitely tweakable, but it can be complicated! There are several versions designed for netbooks, but you can run any distribution without difficulty. Take a look at the latest release of Intel's Moblin or Canonical's UNR if you want to see what Linux looks like on a netbook. There's also plenty of free Linux software to try, from old-school trackers (MilkyTracker) and modular synths (AMS) to fully-fledged Pro Tools-alikes (Ardour) and MIDI/audio sequencers (Rosegarden). These aren't as glossy or as well supported as their commercial counterparts, but they're almost as functional and cost nothing.

iPhone and iPod Touch

Great controls and enterprising developers make Apple's portable devices solid music-making options



> After years of waiting for a mobile platform to appear that most of us would want to use, Apple finally put its Newton failure behind it and built a portable device that's taking over the world. Apple's mobile computer platform comes in two flavours. There's the iPhone 3G and 3GS, complete with 8GB, 16GB or 32GB of memory and phone functionality currently locked to a specific provider, O2. Monthly contracts start at £30 and you'll also need to stump up £175 for the 32GB model on a 24-month contract. Pay as you go iPhones exist, but you'll need to spend £440 for the 16GB model and a staggering £538 for the 32GB. However, these prices are likely to change, as O2 will soon no longer be the sole provider of iPhones in the UK, with Orange and Vodafone getting in on the action.

Then there's the third generation of the iPod Touch. It has almost the same hardware as the iPhone, is slightly thinner, packs 8GB, 32GB or 64GB of internal storage, and costs considerably less - the 8GB model is £149, the 64GB model £299. The iPod Touch features the same capacitive touchscreen as the iPhone, supporting multitouch gestures, a fast CPU, plenty of local storage and a version of OS X that's been specifically built for fumbling fingers. Combine this with an SDK that almost any

programmer can afford to use, the App Store interface to all the latest releases, and a community of developers who can't keep up with demand, and you have a history-making recipe for success.

Accessorise

The iPhone and iPod Touch are positively inundated with amazing audio applications. Developers can use the same Core Audio framework for their mobile apps that they use for OS X desktop applications, and for anyone who's played with audio on OS X, that's a great thing. Low latency and real-time mixing are par for the course, and the built-in microphone found on the iPhone actually records quite well - although there are plenty of third-party peripherals if you want to expand your device's capabilities in that area. The Mikey from Blue Microphones, for example, is a high-quality stereo condenser capsule that fits into the iPhone/iPod's dock connector, enabling high-quality stereo input.

The selection of software on offer at Apple's App Store is unbeatable and - mostly - remarkable value. There are multitrack recorders, modular synthesisers, digital audio

"The selection of software on offer at Apple's App Store is unbeatable and - mostly - remarkable value"

workstations, SoundTracker clones, generative compositional tools, virtual studios, MIDI controllers, step sequencers and a whole host of other applications that defy easy categorisation. Just look at our back catalogue of reviews for some indication of the breadth and functionality of what's on offer. Most of them cost less than £1, but there are a few that charge considerably more. The Noise.io synth, for instance, costs £8.99, while Xewton's Music Studio and Intua's BeatMaker are both £11.99. In general, you do get what you pay for, but that doesn't mean you should discount the cheaper options. Many applications also offer Lite versions that either cost nothing or very little. And with user reviews and the downloading of apps over 3G, the App Store is a potentially endless source of inspiration for the mobile musician.

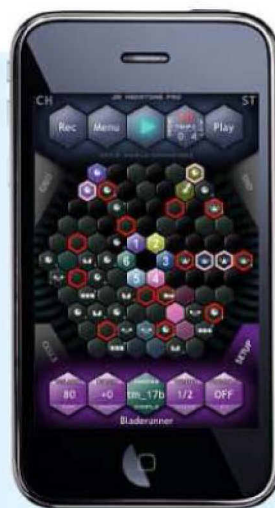
Three of our favourite apps

NOISE.IO, £8.99

One of the best-sounding synths in the App Store, this little wonder is capable of recreating classic analogue tones as well as harsh digital FM, using a unique filter feedback mechanism. The user interface does a good job of placing sliders and scrollbars underneath your fingers, and a keyboard and arpeggiator help with the live performance mode. You can even use the tilt sensors in the iPhone or iPod Touch to modulate various parameters within the synth, and export your sounds to BeatMaker.

JASUTO, £2.99

This is the ultimate modular synth for the iPhone. Looking a little like the Reactable tabletop synth, you move the various components of the synthesiser across the screen, and when one falls within range of another, a connection is automatically made. The type of connection is dependent on the angle between the two, and the strength of the signal is determined by their proximity. It sounds complicated (and it is!) but this unique take on synthesis creates some truly unique sounds.



Sequences in Hexatone can either be random or controlled as you like

JR HEXATONE, £5.99

Built with the help of Dream Theater keyboardist Jordan Rudess, this weird and wonderful rhythm composer puts six sample-playback oscillators at the centre of its honeycomb display, each one loadable with any kind of sound. A variety of manipulators are used to alter the progress of the sound as it moves from one cell to another, either branching to its neighbours or adding a degree of 'entropy'. You can even process the sound in-place as it travels to the edge of the screen.

Mastering your style: software for iPhone and iPod Touch

You can create all kinds of music with the iPhone and iPod Touch. If you enjoy simple synthesis, for instance, take a look at iSyn (£2.99), which combines two analogue modelling synthesisers with a drum module. As you'd expect from premium Mac/PC synth developer Virsyn, the quality of the output is truly exceptional. Each synthesiser features three oscillators, a 24dB low-pass filter, an amplifier, a mixer and an effects section. iSyn combines its phenomenal sound with live keyboard input and drum pads. You can edit all major parameters of the sound and record your own patterns, as well as control the sounds through an on-screen X/Y pad. The results are distinctly 'analogue' and impressively close to what you'd get from a high-quality VST plug-in.

There are several applications with which to revive the nostalgic sonic nirvana of Roland's TB-303 bassline synth and TR-808 and 909

drum machines. We reckon the best sounding is technoBox (£2.99), which carves a beautifully authentic squelch sound from its slick, iPhone-friendly GUI. It also makes full use of the multitouch screen, enabling the twisting of several knobs simultaneously.

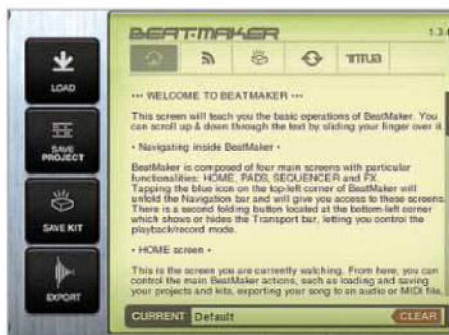
The traditional rhythm section is also well represented in the App Store. One of our favourites is Drum Meister (£1.19), which uses a graphical representation of a drum kit as the hit points for your on-screen performance. It's low in latency and sounds great. Another is iDrum (£2.99), the cut-down sibling of iZotope's PC and Mac drum machine. It's a comprehensive percussive tool that comes in a variety of different flavours, including Rock, Club and Hip-Hop editions, as well as Ministry of Sound's Trance Anthems. It's gratuitous fun, but it can also be surprisingly constructive, enabling you to edit sequences and perform them on the



technoBox offers authentic 303 action, built on the AudioRealism BassLine 2 engine

virtual drum pads. Finally, if you have any interest in 6- or 12-string guitars, bass guitars, the banjo, ukulele or mandolin, Guitar Toolkit is an essential download. Top of its list of features is the tuner, which uses the iPhone's mic, but there's also a chord database, a metronome and a virtual fret board - great for beginners.

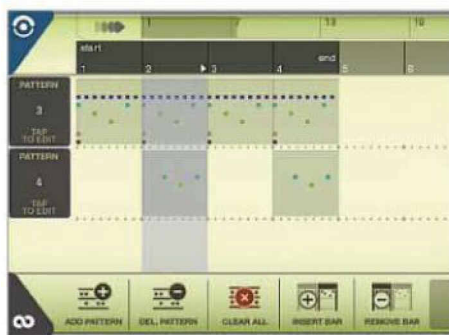
> Step by step Making beats with Intua BeatMaker



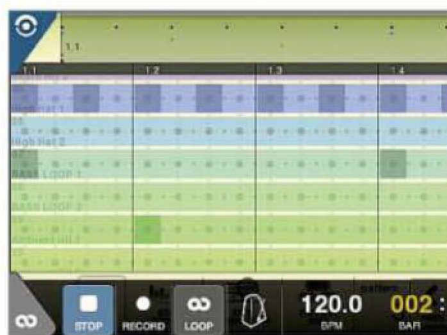
- 1 > From the Home screen, tap the **Load** button, followed by **Artist's Kits»Richard Devine»Devine Kit»Devine Kit.bmk** to load a preset bank of sounds created by Richard Devine - or select another bank of your own choosing. You can also build kits using your own sounds through the freely downloadable BeatPack, available at www.intua.net.



- 2 > Tap the small circular button at the top left. This is the **Mode Overlay** button, and there's a similar one to reveal the transport bar at the bottom left. Select the **Pad** mode from this menu, and you'll see a typical drum-pad view. Each pad triggers either a one-shot sound or a loop. Open the transport and press **Record** and **Loop**.



- 3 > Hold down pads to trigger loops and sounds. When you're happy with the result, press **Stop**. In the Mode Overlay, select **Sequencer**. Each pattern contains triggers for the notes you pressed in Record mode. You can edit patterns by tapping in the far left column, and create new ones to build up a complete song.



- 4 > In the pattern editor, create beats by drawing in notes to trigger the loaded sounds. Adjust the pitch, pan, velocity and groove of each sound by tapping the **Step Editors** button at the bottom of the screen, selecting a parameter and adjusting the bars that appear for that parameter at each trigger point.

Live performance

An increasing number of musicians are making the most of downloadable apps in order to turn the iPhone and iPod Touch into a performance tool. Take MooCowMusic's Band (£2.39), for example. This is an application offering a variety of rock band-orientated virtual instruments that can be played via the touchscreen. It includes the best piano layout we've seen so far, alongside drum pads and a guitar fretboard. There's even a 12-bar blues mode, and the sounds are all impressively authentic - a good app for instant gratification.

Our favourite performance tool, though, is an application called Bebot (£1.19). Despite its childish name and GUI, it's really rather good. It presents a virtual X/Y pad that you use to play and control a synth. The default sound is that of the Theremin, using the vertical axis for volume and the horizontal for pitch, and sounding quite excellent. The synth engine is surprisingly flexible, and you can map any control parameters to the X and Y axes, snap the grid to a specific scale and play polyphonically with many fingers at once.

Finally, we'd be remiss if we didn't mention our own free **Computer Music: Make Music Now** - an intuitive audio sequencer with which you slice, edit and arrange a preset collection of loops to make a track. It was developed by Hige Five, who have also released the superb **Aura** and **Pocket Remix** apps (59p each).

> make music now / mobile music

Nintendo DS

Put Mario aside for a moment and create complete tunes with the help of some quality commercial music-making tools and a thriving homebrew scene

> It may come as something of a surprise to find Nintendo's revolutionary handheld games console making it into the pages of **cm**, but it isn't the first time. We've reported on its considerable compositional capabilities before, and we were amazed by the sound of XSeed's Korg DS-10 synth in particular, running on what was once a gaming device and nothing more.

The DS features a responsive touchscreen positioned below a second, normal screen, has 54mbps wireless connectivity and folds away into a safely storable box that you can throw into your bag. Oh, and it's also pretty good at playing games. Today, the Nintendo DS is every bit as attractive a musical proposition as it was when we last looked at it - in fact, the past 12 months have seen an increase in stability for the platform and its various applications. There aren't that many more tools, but those that have survived have upped the stakes when it comes to quality.

Currently, the hardware is available in two forms: the DS Lite and the DSi. Both offer similar functionality, but the DSi is the latest edition, and as such is thinner, has larger screens and boasts a built-in camera. There are several commercially released DS music-making cartridges available. The most impressive is the aforementioned Korg DS-10 - worth buying a DS for in itself. It's a duo-phonetic synthesiser with the same analogue-like quality as Korg's desktop soft synths. Each synth engine features two oscillators and an extraordinary level of parameter control via the DS stylus. On top of

that, you also get a four-part drum machine using the same sound engine as the synth, as well as delay, chorus and flanger effects that can be added from the on-screen mixer. There are matrix displays for note editing, block editing for drum patterns and real-time record options that capture your inspiration through either the on-screen keyboard or the Kaoss-style arpeggiator mode. The icing on the cake is a patchbay that emulates some of the modulation functions of Korg's MS20. The whole package is nothing short of a miniature sound design miracle, although with an even more capable follow-up, DS-10+, on the way, ironically, now might not be the best time to buy.

Game on

Another interesting DS game/compositional tool is *Electroplankton*, designed and developed by Toshio Iwai, of Tenori-on fame. Just like Yamaha's famous instrument, *Electroplankton* sparks creativity using a mixture of serendipity

and soothing feedback. The ten game modes produce music using a variety of leftfield thinking. Our favourite is *Hanenbrow*, where you change the angles of leaves to divert falling drops of water that produce a differing sound with every impact; but most of the other games are just as compulsive.

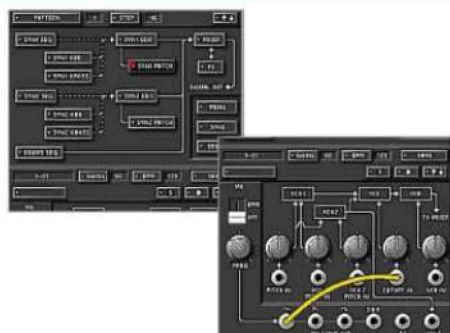
The DS also has a thriving homebrew scene. Nintendo have always been opposed to third-party applications running on their hardware, and the use of the flash cards to bypass Nintendo's boot code is a legal grey area. But if you do choose to take the risk, there are plenty of applications to try. Our favourite is *NitroTracker*, a fully fledged music tracker in the old-school style. There are also numerous applications that use the DS' built-in WiFi to send control data to a PC. DSCMU can control your DAW through the MCU protocol, and will even display track levels; while DSMI is a comprehensive MIDI controller that converts touch to a variety of notes and commands.



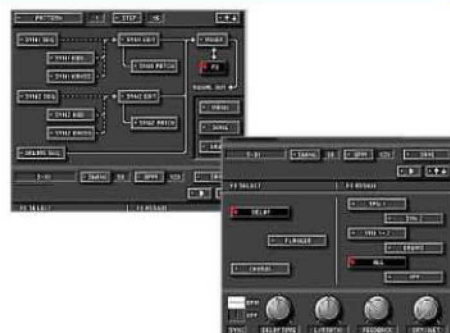
> Step by step Synth heaven with XSeed Korg DS-10



1 > The default view for the DS-10 gets you into the music immediately. Tap the small red circle on the lower screen, and the synth enters loop recording mode. Press notes on the keyboard, and record a pattern into the sequencer. Tap the up/down arrows on the far right to switch the two screens around, enabling you to access the other functions by tapping the modules in the signal flow diagram.



2 > Tap the **Synth Edit** buttons for either of the two synths and the classic set of analogue synth controls appears. The two oscillators are in the central area of the display, where you can change their waveforms and pitch. To the right is the filter section and a single envelope generator. Either of the **EG Init** knobs will alter the amount of pitch/filter modulation and, for advanced editing, try **Patch** mode.



3 > Finally, use the Mixer and FX pages to control the volume and apply an audio effect to any of the components that make up a sound. DS-10 uses a series of patterns to make up a song - when you've created a pattern you like, tap the large **Pattern** button at the top left and save your creation to one of the 16 slots. Use **Copy and Paste** to create multiple patterns, and **Song** mode to sequence them together.

> make music now / mobile music

Sony PSP

Sony's recently revised PlayStation Portable is snapping at the DS' heels when it comes to homebrew music applications...



> For a long time, the Nintendo DS was the king of musical games consoles, but recently, its closest competitor, Sony's PSP, has been catching up. This is largely thanks to the release of Rockstar's Beaterator, a Timbaland-endorsed production from the company behind the *Grand Theft Auto* series of videogames.

The hardware itself has recently benefited from its third major revision, the PSP Go - a thinner console with a brighter screen, slide-out controls and no optical disc drive. Software is delivered purely over the network and stored on local flash memory. However, all versions of the PSP feature a widescreen 480x272 resolution display with numerous gamer-style buttons and an analogue 'joystick'. The limited controls on

offer may not be ideal for music production, but the screen certainly offers lots of potential.

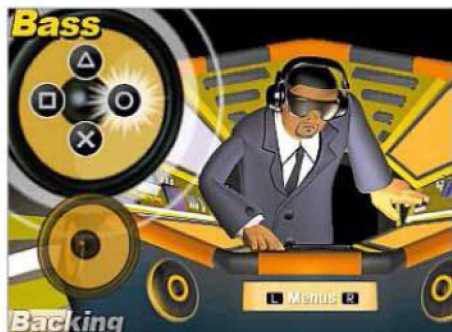
Brewed to perfection

The older version is still available and might in fact be the wisest choice if you're interested in experimenting with the burgeoning PSP homebrew scene. Like Nintendo, Sony are strongly against any form of software modification being made to the PSP, but that's the risk you have to take if you want to run homebrew software. Unfortunately, this is also the cause of the rampant game piracy that's surely held the PSP back from wider developer adoption, so we could never condone its use or installation. For those who cross the line,

though, there are several innovative homebrew applications available to the musically-minded. And thanks to Beaterator, you may not even have to resort to a homebrew solution. The program is a comprehensive music-making tool with a firm emphasis on fun. It feels a little like Image-Line's FL Studio in the palm of your hand, in fact, and while it suffers from the lack of touch input, you can still create accomplished music with it, using either the built-in loops or those of your own making. There are two modes of operation: Live Play, which is a fun but rather lame real-time mixing environment, and Studio, which is where you program your own loops and sequences. The latter is far more interesting, and surprisingly capable.

> Step by step

The basics of Rockstar Beaterator



1 > The first mode of operation is Live Play, a basic mixing environment in which you juggle beats and loops using the PSP's action keys. It's a nice time-waster, but you're unlikely to break new ground with it - especially if you stick with the built-in sounds and loops. Fortunately, you can replace them with your own...



2 > ...Which brings us to the second mode, Studio. Here, you can play back synths, audio files and drum kits by assigning different types of loop to an action key with various configurations. A song has eight such configurations, and you can choose which loops are attached to the keys when you first enter Studio mode.



3 > Use the cursor control to select **Edit** mode and fine-tune your loops using an audio editor - you can change loop duration, cut out sections and alter the amplitude. If you select a drum track, you can load different drum kits and create beats using a DAW-style drum grid.



4 > The Melody Crafter mode enables you to create melodies on a pitch-based matrix. You draw lines from one note to another and Beaterator fills in the blanks on playback. Once you've got a selection of loops, use the Song mode to sequence them - you can export songs as WAVs, too.

Homebrew hotlist

Our favourite PSP homebrew app is the PSP Rhythm sequencer. It bundles a TB-303-style synth, a wavetable synth and sample playback. The digital D-pad enables you to add sounds, use the note matrix and navigate the app, while the analogue stick is used to change the values of the four knobs at the top of the screen, based on the angle it's pointing at. What's more, the wavetable loads samples directly from the PSP's memory card, projects can be exported as a WAV file, it sounds fantastic, and amazingly, it's free.

Second on our list would be PSPSeq, a kind of crude tracker with a programmer's approach to music making. If you ever used SoundTracker in the Amiga days, PSPSeq is for you. The matrix is basically a 64x16 step sequencer, with a grid showing an overview of what notes are programmed and when they're going to be triggered. You can use either the digital or analogue pads to move through the matrix, with the latter accelerating navigation. Each track has its own DSP-generated instrument. Classic synth, noise, FM and destruction-based generators are all provided, and you trigger notes in the matrix by pressing X. Note frequency and volume, and - weirdly - trigger probability can all be adjusted with the analogue stick, too, along with dozens of other parameters.

Windows Mobile and Palm OS

Despite their seemingly inappropriate interfaces, these two venerable platforms boast some surprisingly good music apps



> Microsoft's portable OS has always suffered from usability problems. There's currently no support for capacitive touch, which means you have to use a stylus or prod the screen in a very clumsy manner, and the Windows interface surrounding the traditional Start menu doesn't help with the immersion. But these issues haven't stopped Windows Mobile winning a large chunk of the smartphone market.

The latest Windows Mobile phones have better screens than ever, often with higher resolutions than the iPhone, increased memory and CPU speeds, and a wide variety of easily ported applications to choose from. HTC is the current king of the platform, but many other manufacturers offer alternatives running the same operating system. When it comes to music making software, there's a small but beautifully formed range of tools available. Meteor (£19.95, 4pockets.com/product_info.php?p=82) is great for multitrack recording in the traditional DAW fashion, while GRIFF (£9.99, www.planetgriff.com) is a great portable sequencer. The superb Pocket StompBox (£9.95, 4pockets.com/product_info.php?p=81) suite comprises a series of guitar effects pedals, processing the audio input from the host device's built-in mic in real time. It also features a

rather useful metronome and loop recorder.

For a different approach to music making, Mixtiki (\$9.99, www.intermorphic.com) is a mixing system and block composer - take your own content, create synthesised tones and mix it all together. Mixtiki's various modular components enable performance, remixing and

sound design, including a General MIDI synth and the Noatikl generative music tool that inherits much of its functionality from the old Koan generative music system, which counted Brian Eno as a fan. There's also a VST/AU plug-in version, for loading the fruits of your travels directly into your desktop DAW.

Palm OS

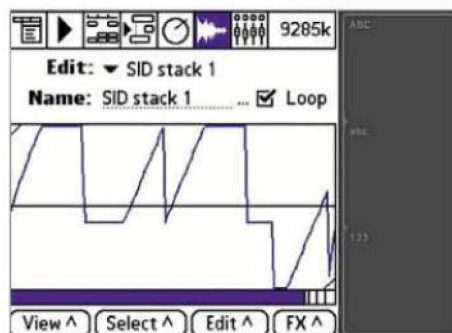
The Palm platform has been dead for a number of years - and it's too early to tell whether the new version, Palm Pre, will pick up the same grass roots following of the original - but that doesn't mean it should be ignored. Old Palm devices have two big advantages over the other platforms discussed here. Firstly, they're dirt cheap. You can pick up an old Zire for £20 on eBay, and faster Tungsten models are around £50. Even old greyscale-screen versions run most Palm software and cost next to nothing. Secondly, the original Palm was an excellent and popular development platform, once

boasting a library of over 50,000 apps, many of which are still used now - even if they're not being developed any longer. Lots of these apps are free, too, as their commercial life is over, and the best of them will most likely be ported to the Palm Pre once the APIs and toolkits stabilise.

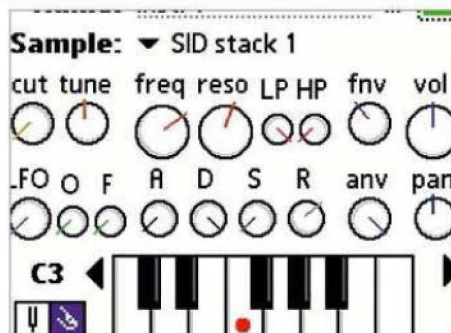
Our favourite app for Palm is Bhajis Loops (\$26.99, www.chocopoolp.com), where you use your own samples as sources for the synthesis engine, drawing notes into a matrix editor. It's a lot of fun, has excellent micro-tuning capabilities and exports your music as MIDI files and/or WAVs.

> Step by step

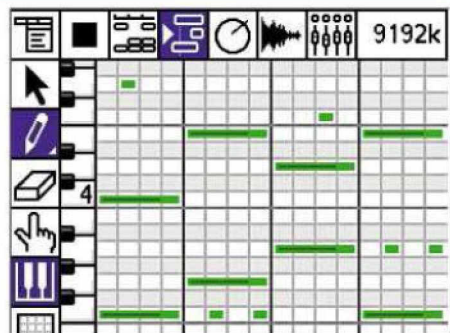
Bhajis Loops in action



1 > Upon launching the application, you'll see the grid view and a GUI that looks like it's come directly from the Atari ST. This isn't a bad thing! Tap the waveform button, then the **Edit** menu. From there, select **Add Sample** and choose a waveform. You can preview each sound by pressing play, and load your final selection by tapping **Done**.



2 > You can edit the sound and add simple effects in the waveform view, but if you tap the dial to its left, you'll be able to use the sample as an oscillator in a synthesiser. First, select the sample from the menu for the first instrument and switch to **Finger** mode, so that you can play the virtual keyboard with the stylus, then adjust the **Cutoff**, **Resonance** and **envelope** parameters to taste.



3 > Tap the next button to the left to open the matrix note editor. This creates a loop using your current sound, and you can draw melodies and harmonies onto the screen. Load more instruments and switch between them using the menu at the bottom left. The cursor keys at the bottom right are used to create new patterns, while songs are built up in Song mode - the last button on the toolbar.

> make music now / mobile music

Remote control

Control your desktop DAW's instruments, effects processors and mixers with your touchscreen portable

> Another aspect of mobile computing for musicians is the proliferation of applications designed to remotely control DAWs and plug-ins on your Mac or PC. This is in large part driven by the touchscreens on many handheld devices – in particular, the capacitive multitouch capabilities found on the iPhone and iPod Touch.

Ever since DAWs and soft synths started using graphical representations of hardware on-screen, we've wanted to reach out and touch them. Touchscreen phones and the Nintendo DS make this possible, all without spending a small fortune on devices such as JazzMutant's Lemur. Most such applications work by running a companion app on your desktop. This is used to convert the commands sent over the wireless

connection from your mobile device into either MIDI or OSC messages that can be understood by your music software.

Some offer simple remote control, usually by emulating the Mackie Control Universal protocol used by Mackie's hardware controllers, amongst others. This has the advantage of being compatible with a broad range of software, including every major DAW on Windows and OS X. On the iPhone platform, there are several apps that can talk MCU, but the most comprehensive is iTM MCU (£3.49) – use its sliders, mute and solo buttons to control your DAW's mixer, and the transport buttons to control playback. If you're a Cubase 5 user with an iPhone/Touch, you can download Steinberg's

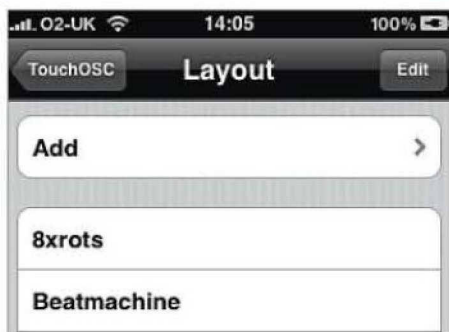
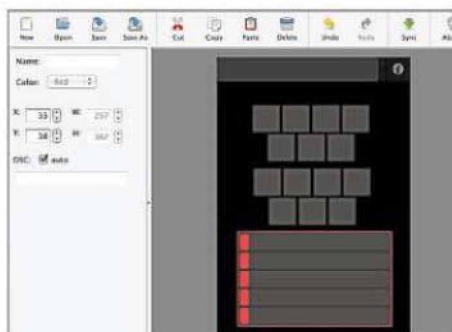


free Cubase iC. This gives you control of Cubase's transport, playback position and cue points, as well as punch in/punch out recording – ideal when you're performing away from your computer's screen and mouse.

Another iPhone contender is Novation's Automap (£1.79), which creates a dynamic series of buttons and sliders on your iPhone mapped to currently selected parameters in your DAW.

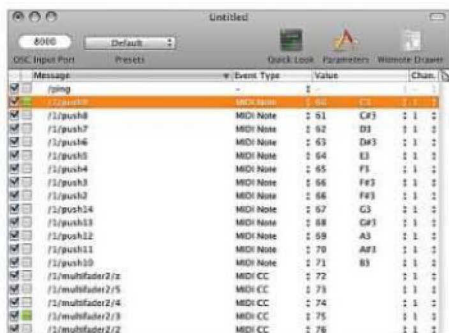
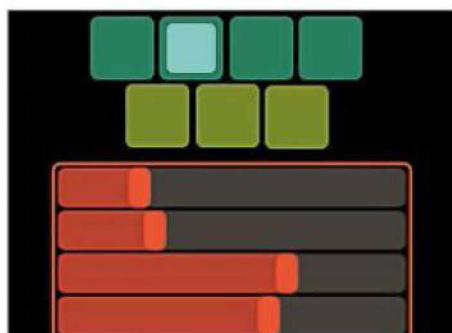
> Step by step

Dynamic control with TouchOSC on iPhone



1 > With TouchOSC (£2.99), you design control surfaces and send them to your iPhone, which is then used to control your music software. From the desktop application, select an orientation and right-click the blank canvas. Add your own buttons, sliders and rotary controllers, then save your complete layout.

2 > In the desktop app, click the **Sync** button. On your iPhone or iPod Touch, launch TouchOSC. Touch **Layout** followed by **Add**, and select the seemingly random number that represents your computer. You should now be able to see and select your new layout. Now start your OSC server on the computer and click **Done**.



3 > Pressing the various buttons, sliders and rotary controllers sends OSC messages back to your PC, where they can be translated to MIDI if necessary and used to trigger sounds, control parameters or anything else that you might want to do with MIDI messages.

4 > On a Mac, Osculator will list each OSC event received and wait for you to assign it a message. You can multi-select messages and assign events in batches. It's most likely that you'll want to create MIDI notes or CCs. **Osculator Out** will appear as a MIDI port in your application, to be assigned like any other MIDI device.

MIDI performance

Most remote apps use the OSC protocol, because its data can be transmitted at high speed across networks, whereas the perennial MIDI is relatively slow and made only for serial connections. One downside of OSC, however, is that you often need to translate its native commands into MIDI equivalents to use the performance data with most music software.

Osculator (osculator.net) is one of the best apps for this conversion process on OS X. As you play and press controllers on your remote application, it detects each different OSC transmission and lists them according to type. You then use the menu to the right of each recorded command to specify what kind of MIDI event you'd like it to be translated into.

There's the obvious, such as MIDI notes, but you can also generate control data, pitchbend and patch changes, all with just a few clicks. These are transmitted either through the loopback MIDI device in OS X, or a hardware MIDI interface. On Windows, check out the free VST plug-in, **OSCglue** (www.tiki-index.php?page=OSCglue), which translates messages within your DAW. For the much more technically minded, there's **PureData**, an open source, MAX-like visual programming environment, with plenty of freely available patches to help get you up and running. cm

> on the disc / dvd contents

> Full contents of your 7.7GB Dual Layer disc

cmDVD

PC MAC

Toontrack's EZdrummer Lite, over 2000 uplifting samples, the latest reader music, dance guru Phonat on video and much more, all on this month's disc!

DVD contents Full software

Full software

EZdrummer Lite (PC/Mac)
Brainworx bx_cleansweep
(PC/Mac)
Togu Audio Line TAL-Reverb
(PC/Mac)
Meatscience Bitsmacker (Mac)

Demo software

D16 Group Toraverb (PC/Mac)
iZotope Alloy (PC/Mac)
Intelligent Devices Marshall Time
Modulator (PC/Mac)
Intelligent Devices MegaDelayMass
(PC/Mac)
Intelligent Devices Slip-N-Slide
(PC/Mac)

Tutorial files

cm Focus
Hip-hop Vocals
Mastering for Beginners
Off the Dial
Q&A
Sound Essentials
Totally Trackers
The Easy Guide
Studio Session

Samples

2032 24-bit uplifting samples

Reader Music

Audio With Expression -
Dark & Light
Blumenkraft - *Sweat My Ass*
Model 609 - *Model 609*
SNK Beats -
Break Inn (Instrumental)

TOONTRACK EZDRUMMER LITE (PC/MAC)

Toontrack's virtual drum kit plug-in will have you creating complete, professional-sounding drum parts in minutes with its easy-to-use interface, built-in mixer, superb sounds and over 500 MIDI grooves. Turn the page for your complete guide to installing, authorising and using this amazing instrument.

System requirements

PC 1.8GHz CPU, 512MB RAM,
Windows XP or later
Mac 1GHz G4 CPU, 512MB RAM,
OS X 10.4 or later
Web www.toontrack.com



Toontrack's tub-tastic EZdrummer Lite is yours to keep!



TAL-Reverb may have simple controls, but it also sounds simply amazing

BRAINWORX BX_CLEANSWEEP (PC/MAC)

Combining high- and low-pass filters in an innovative single-joystick control, bx_cleansweep is a versatile tool for mixing and sound design. For more info, see *Freeware News* on p18.

System requirements

PC VST/RTAS host
Mac AU/RTAS/VST host
Web www.brainworx-music.de

TOGU AUDIO LINE TAL-REVERB (PC/MAC)

A handy plug-in from Togu Audio Line, TAL-Reverb is simple but effective, delivering great-sounding spatial effects quickly and easily.

System requirements

PC VST host
Mac AU or VST host
Web kunz.corrupt.ch

MEATSCIENCE BITSMACKER (MAC)

Meatscience's new plug-in is a fabulously filthy digital distortion unit designed to help you crust up your sounds with sample rate and bit depth reduction controls, built-in EQ and more.

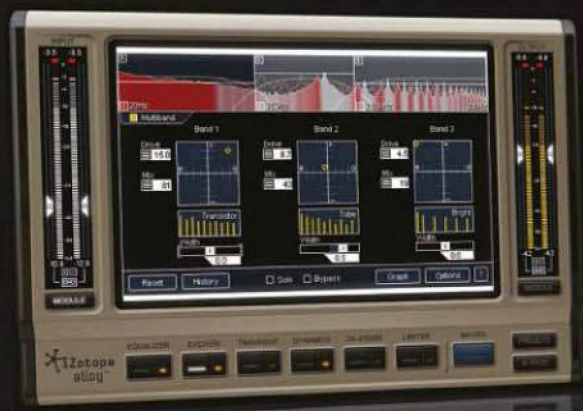
System requirements

Mac AU host
Web meatscience.net

drive	0.0	20.0	6.66	Gain
resampling rate	60.0	44,100	1,826	Hz
bitrate	0.01	32.0	3.3	bits
inEq frequency	50.0	22,049	333.0	Hz
inEq gain	-20.0	20.0	-20.0	dB
inEq Res	0.25	20.0	1.0	Q
outEq frequency	50.0	22,049	200.0	Hz
outEq gain	-20.0	20.0	0.0	dB
outEq Res	0.25	20.0	1.0	Q

Bitsmacker:
a go-to plug-in
for all your
lo-fi needs

Demo software



Test drive iZotope Alloy for ten days, and find out what we make of it on p94

D16 TORAVERB (PC/MAC)

An algorithmic, "space-modulated" reverb, Toraverb offers a great degree of flexibility thanks to an array of tweakable parameters and innovative features such as modulated reverb tail, cross-talking spatial reflections and early/late reflection equalisation. The demo is total-recall-disabled and will quit after each 30-minute session.

System requirements

PC 2GHz CPU, 512MB RAM,
Windows 2000 or later, VST host
Mac 2GHz CPU, 512MB RAM,
OS X 10.4 or later, AU/VST host
Web www.d16.pl

IZOTOPE ALLOY (PC/MAC)

iZotope's new channel strip plug-in includes dynamics, de-esser, EQ, limiter, transient and exciter modules, all of which can be freely configured, for the ultimate in

mixing flexibility. The trial version functions without restrictions for ten days, after which it outputs silence at regular intervals.

System requirements

PC Windows XP or later,
VST/RTAS/DirectX host
Mac OS X 10.4 or later,
AU/RTAS/VST host
Web www.izotope.com

INTELLIGENT DEVICES EFFECTS (PC/MAC)

Marshall Time Modulator, MegaDelayMass and Slip-N-Slide: a trio of plug-ins aimed squarely at the sound designer looking for something different. These demo versions require PACE drivers and expire after eight days use.

System requirements

PC VST host
Mac VST host
Web www.intdevices.com

PROGRAMS & PLUG-INS

Most of the programs on the DVD-ROM are presented as installers - simply double-click the installer icon and the application does the rest. However, plug-ins are often presented as .dll (PC), .vst or .component (Mac) files. To 'plug' the plug-in into your VST/AU host, just copy the plug-in file into your VST or AU plug-ins folder, as appropriate.

SAMPLES

Every month we give you a wealth of royalty-free samples! You can use them in your music in any way you see fit, without having to pay a penny, even if you end up commercially releasing your work. The only thing you *can't* do is redistribute them as samples - eg, by making a sample CD with them. To install our samples, simply copy them to your hard drive.

USING THE DVD INTERFACE

- 1 Put the DVD-ROM in your DVD drive, let it spin up, and wait for the interface to appear. If it doesn't autorun, browse to it in Explorer/Finder and double-click **Computer Music for OS X** or **PC**, as appropriate. Read the disclaimer and click **Accept** when you're done.
- 2 The main interface will open. Mouse over the links for each section to get a brief description of their contents, and click on your button of choice - in our case, **Software**...
- 3 An Explorer/Finder window will open, showing you the contents of that folder. Any executable files can be run directly from the DVD by double-clicking them. Demos are generally presented as installer applications, but check any Readme text files for additional installation information.

Sample
Magic

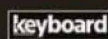
Have YOU Sampled the Magic?



www.samplemagic.com



"You'll want to charge **straight** into the studio with them and get **working!**" **5/5**



"The **definitive** collection of up-to-the-nanosecond loops. **Essential.**"



"Quite possibly the **freshest** dance sounds on the market - get 'em before everyone else does!" **10/10**



"The **cream of the crop**... An unparalleled ratio of useful audio snippets." **5/5**



"A huge variety of sounds... the quality and variety is **stunning.**" **10/10**



"This library rocks in ways other developers can only **dream** of. Period."



www.timespace.com

> Exclusive full software!

Toontrack EZdrummer Lite



Computer Music teams up with Toontrack to bring you this superb virtual drummer plug-in - realistic rhythm tracks are just a few clicks away...

> This month's exclusive **cm** giveaway is Toontrack's EZdrummer Lite, an amazing plug-in that gives you access to a top-quality, fully miked drum kit and session drummer 24/7. EZdrummer Lite uses hundreds of meticulously recorded samples to create kits that are almost indistinguishable from the real thing. The software includes an

enormous library of MIDI grooves performed by session drummers, which can be modified within the plug-in and imported into your DAW using EZdrummer Lite's drag-and-drop interface. In addition, a huge degree of control is provided by the built-in mixer for tweaking the virtual kits.

In this tutorial, we'll take you step-by-step through the process

of installing, authorising and using EZdrummer Lite. Even if you're a newcomer to this computer music lark, we'll have you up, running and creating truly authentic drum tracks in minutes.

If you dig EZdrummer Lite, you can upgrade to the full software for £59 through Time+Space (www.timespace.com). The maxed-out version features over

8000 MIDI patterns, which you can add to with your own rhythms, and multitrack routing via the internal mixer. Upgrading to the full version also enables you to further expand the software with Toontrack's range of EZX expansion packs, covering an array of genres from jazz to heavy metal. Details can be found at www.toontrack.com.



KIT SELECTION
Pick from the Pop/Rock and Cocktails kits here

MIXER
Open this up to fine-tune the sound of your chosen kit

MEMORY USAGE
Displays the loading progress of the current kit and how much memory it's using

CYCLE GROOVES
Cycles through the available loops for your auditioning convenience

HUMANIZE
Activating this adds subtle timing differences to create a more 'human' sound

OPEN GROOVE
Brings up the menu of EZdrummer Lite's many available grooves

VELOCITY
Controls how hard auditioned loops are played back

AUDITION BUTTON
Plays the currently selected groove at the host's tempo

GROOVE
Displays the groove you're currently auditioning

TEMPO
Switches between double, half and normal speed playback

> Step by step Installing and authorising EZdrummer Lite



- 1** > The EZdrummer Lite installers are in the folders **Software\Toontrack\Install\PC** and **Software\Toontrack\Install\Mac**. Run **EZdrummer Lite Installer.exe** (PC) or **EZdrummer Lite Installer.mpkg** (Mac) and follow the instructions on screen.



- 2** > Launch your plug-in host and load EZdrummer Lite instrument. If you're not sure how to do this, read the **Beginners Start Here PDF** located in the **CM Studio\CM Studio Tutorials** folder on the **cm** DVD. When you launch the plug-in for the first time, you'll be required to authorise it - the software will again guide you through this painless process.



- 3** > The next thing you need to do is create an account online at www.toontrack.com/register. Once that's done, log in and return to www.toontrack.com/register. Enter the serial number located on your **cm** DVD sleeve and click the **Submit** button.



- 4** > On the next screen, click the **Authorise Product** button to be taken to the relevant screen. Here you need to enter the Computer ID number displayed by the plug-in in step 2, and a descriptive name for your computer.



- 5** > Once you click the **Authorize** button, you'll be presented with an authorisation code. This should be copied and pasted into the **Authorisation ID** field on the plug-in's interface in your DAW. When you've done that, hit the **Authorize** button on the plug-in.



- 6** > Now you'll finally see EZdrummer Lite's interface in all its glory! We're not quite done yet, though, as Toontrack have also thrown in the Cocktail expansion pack. Quit your DAW, run the **EZX Cocktail** Installer program located in the same folder as the **EZdrummer Lite** installer and follow the instructions.

> Step by step Making beats with EZdrummer Lite



- 1** > Now we've installed and authorised all the content, let's get down to the serious business of laying down some beats. Fire up your plug-in host and load the EZdrummer Lite instrument. Start by clicking the **Open Grooves** button at the bottom centre of EZdrummer's interface. This will bring up the Grooves menu, from which you can select a rhythm.



- 2** > You'll see two available categories in the Grooves menu, **EZP Free MIDI**, and **EZX Cocktail**. Click **EZP Free MIDI**, then select **EZX Vintage Rock** from the next list that appears. You'll be presented with a variety of styles to pick from. Let's go for the **Funky** style in the **Standard Tempo** 100-130BPM section.



- 3** > You'll be presented with a choice of three grooves. Click **Groove 01** to see a list of variations. You can preview these by clicking them and activating the play button by the patch's name at the bottom of the interface. Drag **Hats Closed** onto EZdrummer's MIDI track. A MIDI part will appear. Play it back and you'll hear EZdrummer's super-realistic drum sounds.

> Step by step Making beats with EZdrummer Lite (continued)



4 > EZdrummer gives you a much greater degree of control over the sound than prefabricated drum loops can. Let's say the beat is currently a bit roomy for your taste. Click the **Open Mixer** button at the bottom left of the interface. This brings up EZdrummer Lite's mixer, where you can customise the instrument's sound from within the plug-in itself.



5 > Turn down the **Overhead** and **Room** mics to get a much drier sound. The pan and level for each mic can be set individually, but if you'd rather not get into that level of detail, you can simply pick one of the preset mixer setups by clicking the **Preset** button at the top left-hand corner of the mixer.



6 > When recording drums in real life, microphones will 'bleed' into each other, meaning a mic intended for one drum will pick up the sound of another, too. EZdrummer simulates this phenomenon, but you can deactivate it by turning the **Bleed Control** settings on the Snare B and Overhead channels **Off**.



7 > Channels can be grouped together by clicking their names below the faders, enabling you to adjust the level of multiple tracks simultaneously. Another useful shortcut is the pan randomisation button. This sits over to the left of the pan controls, and clicking it randomises the positions of the Hihat, Overhead and Room mic channels.



8 > Click the **Close Mixer** button to return to the main screen. As well as customising the sound of the drums themselves, it's also possible to affect how they're played. The **Humanize** button to the left of **Open Grooves** controls the randomisation of EZdrummer's timing. Turn this off if you want exact control over the timing, or leave it on for a more lifelike, 'real drummer' feel.



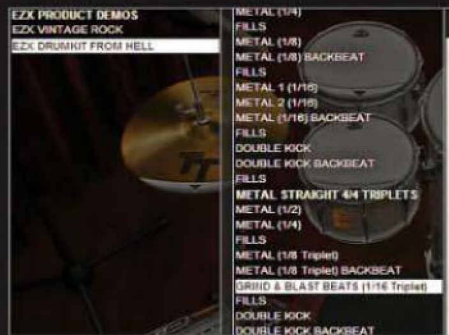
9 > The **Velocity** control dictates the hardness of the beat - turning it up is like telling the drummer to whack the skins harder. Note that this control alters the note velocities of the MIDI part dragged into your sequencer, rather than modifying the output of the plug-in.



10 > The **Tempo** setting between the **Humanize** button and **Velocity** knob also alters the MIDI parts exported from EZdrummer. Setting this to **2X** will play the grooves twice as fast, while selecting **1/2X** plays them at half speed. This is useful for creating slower or faster sections of tracks, or when working with projects where the project tempo is set to double or half time.



11 > To switch to the Cocktail drum kit, click **Pop/Rock Lite** below the EZdrummer logo. Select **Cocktail** and the interface graphics will change from a wood-floored recording studio to a cocktail lounge. The rock drums are also replaced with a cocktail kit, for an altogether groovier vibe.



12 > You can use the Vintage Rock and Drumkit From Hell grooves with either kit, giving you dozens of possible combinations. You can also edit the MIDI parts to your exact specifications inside your DAW, giving you complete control over your rhythm tracks. Enjoy! **cm**

>Royalty-free, pro-quality sounds!

2032 samples

PC MAC



We've pulled out all the stops to bring you this exclusive collection of uplifting, soulful and euphoric samples

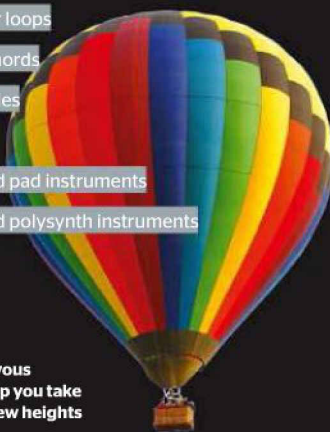
2032 24-bit cm Uplifting Vibes samples

Winter is well and truly upon us, so to combat the misery induced by cold days and dark nights, we've commissioned cm's industrious sample producers to create the ultimate collection of uplifting samples. From soulful gospel organs and hand-raising piano riffs to silky pads and powerful polysynths, everything you need to make feel-good songs and anthems is right here!

Cyclick

This inspiration set of sounds from Cyclick includes bubbling synth arpeggios, chilled-out lap steel slides and angelic choir pads.

- 50 arpeggiator loops
- 33 choir pad chords
- 35 lap steel slides
- 60 pad loops
- 4 multisampled pad instruments
- 4 multisampled polysynth instruments



This month's joyous samples will help you take your music to new heights

Groove Criminals

The Crims have done a bit of soul-searching this month and provided a selection of groovy gospel-style organ licks, amongst other goodies.

- 60 organ chords
- 91 synth choir chords
- 14 harp runs
- 77 musical loops
- 3 multisampled keyboard instruments
- 3 multisampled pad instruments

www.groovecriminals.co.uk

Hattrixx

Hattrixx' contribution to this month's sample collection includes a set of unashamedly ravey piano riffs, an octet of big 'n' bold synth multisamples, and plenty of fulsome pads and arpeggiations.

- 152 arpeggiator loops
- 156 key loops
- 260 pad loops
- 8 multi-sampled synth patches

www.hattrixx.co.uk



Sample and video playback

cm videos are presented in MOV format, which means that you need QuickTime, QuickTime Alternative or VLC installed on your system to play them. Macs feature QuickTime as standard, and PC owners who don't have QuickTime installed can use VLC instead. VLC is an open-source media player that can handle pretty much any format you can throw at it - you'll find it in the VLC Media Player folder on the cm DVD. VLC is also recommended to Windows users who find that 24-bit samples won't play back in their Windows Media Player. For the latest version, go to: www.videolan.org

Producer Masterclass Video

Artists **Phonat**

Abandoning the idyllic Italian countryside to make floor-filling beats in the heart of London, Phonat is a man on a mission to make the most pumping dance sounds around. In this exclusive video tutorial, he shows us how he uses Camel Audio's CamelPhat plug-in to create faux sidechain compression effects in Cubase SX 3, and demonstrates his crazy vocal cut-up techniques.

Web www.phonat.net



HAVING PROBLEMS?

In the unlikely event that you have trouble with your disc, send an email to support@futurenet.co.uk and they'll help you out. Please do not phone us, as we don't give technical support over the telephone!

If you experience a problem with your software, you should first refer to the software manual. This is often delivered with the software itself or is sometimes placed on your hard drive when you run the Installer. If you find that you don't understand some of the features of the software, remember to read the manual first. Should you be unfortunate enough to run into any technical difficulties with the software, it is often best to get in touch with the developer of that software - they are probably better-equipped to offer you the support you need than we are.

BROKEN DISCS: If your disc is corrupt, cracked or otherwise inoperable, we'll send you a spanking new replacement within 28 days. Send the DVD to: Disc Department, Reader Support, Future Publishing, CMU146/December/09, Bath BA1 2BW. And don't forget to include your full name and address!

cm STUDIO

Our exclusive suite of applications, instruments and effects is on the DVD every month – it's quite literally all the software you need to make great music now!

APPLICATIONS

XT Software energyXT2.5 Core CM (PC/Mac/Linux)
VST host and sequencer with modular routing

Outsim SynthMaker CM (PC)
Create your own VST synths and effects

MuTools CMusic (PC/Mac)
VST-compatible audio and MIDI sequencer

INSTRUMENTS

Sugar Bytes Artillery2 cm Edition (PC)
Multi-FX with internal sequencer

Ummet Ozcan Genesis CM (PC)
Another amazing virtual analogue synth

Muon CMplay (PC/Mac)
Powerful ROMpler instrument

Dominator (PC)
Virtual analogue synth with a classic feature set

u-he ZebraCM (PC/Mac)
Amazing virtual analogue synth

LinPlug AlphaCM (PC/Mac)
Subtractive synth with ring and amp modulation

Homegrown Sounds Astralis CM (PC)
Modulation-heavy 'soundscape' synth

Homegrown Sounds Astralis Orgone CM (PC)
Flexible sample-based synth

XT Software EnergyCM (PC/Mac)
Analogue-style sequencer

XT Software Energy Pro (PC)
Step sequencing analogue-style synth

Fabfilter One 2.01 (PC)
Beautiful-sounding single-oscillator synth

Kotkas Paax 3 CM (PC)
Feature-packed soft sampler

Odo Synths Unknown 64 CM (PC)
C64 SID chip-emulating VSTi

Krakli CMorg (PC)
Vintage organ instrument

AlgoMusic ElectraBass Rack CM (PC)
Easy to use bass synth that's packed with presets

Humanoid Sound Systems Scanned Synth CM (PC)
Create abstract noises and haunting instruments

Muon CM-101 (PC)
Analogue-style VST synth

Muon SR-202 (PC)
16-pad VST drum machine

START HERE
Get the **cm Studio** installed with our easy-to-follow PDF guides! They're on the DVD in **The CM Studio/CM Studio Tutorials** folder.

Muon CM-303 (PC)
Emulation of the classic Roland TB-303 synth

Muon DS-404 (PC)
Powerful 16-part multi-timbral VST sampler

LinPlug CM-505 (PC/Mac)
Analogue drum synthesis made easy

EFFECTS

Image-Line CM Vocoder (PC)
Special **cm** version of FL Studio's FL Vocoder

Aixcoustic Creations Electri-Q CM (PC)
Sweet-sounding and flexible equalisation

Martin Eastwood CompressiveCM (PC/Mac)
Compressor/limiter with sidechain input

Audio Damage Pulse Modulator (PC/Mac)
Wild, stompbbox-esque modulation effect

Betabugz Vascillator (PC)
Semi-modular feedback delay multi-effect

Image-Line CM WaveShaper (PC)
Flexible wave distortion effect

PSP Springverb (PC)
Authentic VST spring reverb effect

SimulAnalog Guitar Suite CM (PC)
Plug-ins modelled on classic guitar effects and amps

Ohm Force Ohmygod! (PC/Mac)
Crazy resonant/comb VST filter

Camel Audio CMFuzz (PC)
Quick and dirty distortion

Intelligent Devices MegaDelayMassCM (PC/Mac)
Sound design-orientated delay module



Genesis CM is one of the most powerful synths in the **cm Studio** and just the thing for creating massive trance sounds

cm Studio session

Make a spin delay

PC MAC



We show you how to recreate the timeless studio effect heard on countless dub records, using the amazing KR-Delay **cm** Edition plug-in

> The so-called 'spin' delay effect derives its name from the dark days before digital mixers and automation, when producers would quite literally spin a channel's send knob up and down to apply delay to a short part of the track. This technique comes in particularly useful at the end of vocal parts, where the last word of

a phrase can be spun to create a spacey effect that sounds great, and it's also useful for smoothing the transition between sections of a track. It's used extensively in dub reggae, and has also proved popular in other styles, including pop, jungle and house, to name but a few.

In this tutorial, we'll look at how

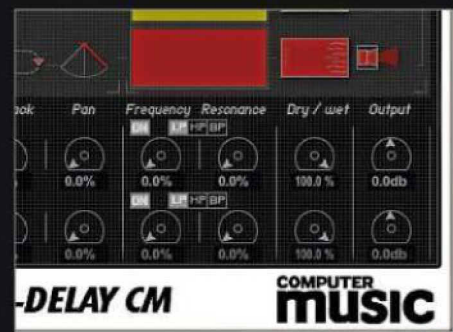
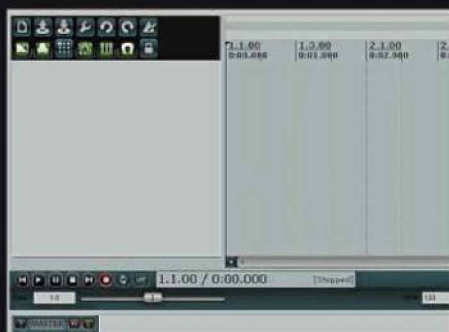
you can create this effect in software using the **cm** Studio's KR-Delay **cm** Edition plug-in. KR-Delay is a stereo feedback delay with tempo sync and a resonant multimode filter inserted into each of its delay lines. These features make it ideal for creating spun feedback delay effects, particularly with the filters set to high-pass

mode and the resonance turned up for that authentic 'crusty' vibe.

Using an automated software delay also gives us an incredible level of positional accuracy compared to the old-school real-time method, making it much easier for us to get that perfect take. So, without further ado, let's get our echo on...

> Step by step

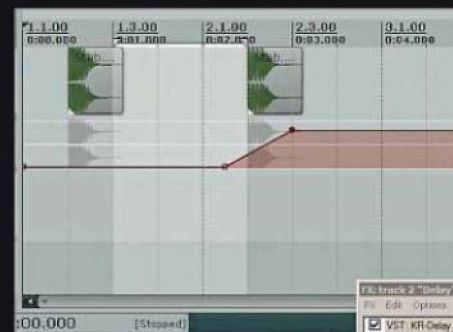
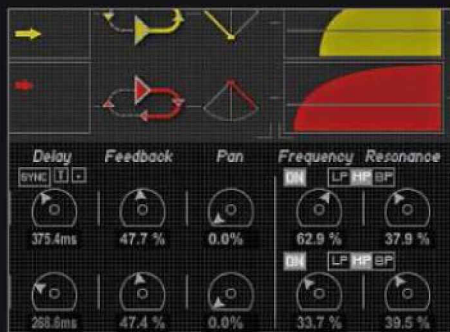
Creating a spin delay effect



1 > Install KR-Delay **cm** Edition, located on the **cm** DVD in the **CM Studio\PC Software\Plug-ins\KR-Delay CM Edition** or **CM Studio\Mac Software\Plug-ins\KR-Delay CM Edition** folder. Copy the **Tutorial Files\Studio Session** folder from the disc to your hard drive, and load your DAW of choice - we're using Reaper.

2 > Drag **Stab.wav** from the **Studio Session** folder into Reaper. Hold **Ctrl/Cmnd** and drag the sample across to create a copy. Hit **Insert>Track** to create another track, which will house our delay. Adjusting the send level from the original to this channel enables us to determine which bits of audio are processed.

3 > Label the second track **Delay Send**, and click its **FX** button to bring up a list of the available plug-ins. Double-click **KR-Delay CM** to add it to the channel. Because we're using the effect as a send, we need to set both **Dry/Wet** knobs to **100%**, as shown.



4 > KR-Delay CM's filters are the key to shaping the sound of its feedback delay. Copy the **Feedback**, **Delay**, filter mode (both **HP**), **Frequency** and **Resonance** settings shown here. You can tailor these values later, once the send routing has been set up correctly.

5 > To route a send from the **Stab** channel to the delay channel, click its **io** button, bringing up the routing window. In the **Sends** field select **2:Delay**. Now hit the **Env** button on the **Stab** track to call up the Envelopes window. This enables us to select which of the track's parameters we want to automate.

6 > Click where it says **Track 2 "Delay" Send Volume** to open the automation lane below. You can create new points on the envelope by holding **Shift** and clicking on it. To apply spin delay to the second stab, bring up the send level, as shown. Adjust the settings from step 4 to your taste and you're done! **cm**

Reader music

Four readers subject their tracks to the scrutiny of our team of expert producers and engineers



Send us your music

For the chance to be featured in *Reader Music*, simply send us your track via the SoundCloud DropBox on our website (see the walkthrough below for instructions), along with a description of your act, an image (sleeve art, photo or logo that you own the copyright to), and your equipment list. Be absolutely certain that no copyright samples have been used! The best tracks we receive each month will be reviewed here and featured on the cm DVD, so send yours our way today!

Rules:

1. Send no more than two tracks
2. Submit your track(s) via the SoundCloud DropBox on our website
3. The audio and MIDI files used must all be original and/or royalty-free

SNK BEATS Break Inn

Artist: Shane Lee
Contact: www.snkbeats.com



> This is a good example of how just one sound can be the downfall of a whole track. *Break Inn* is a highly competent, albeit short dance tune, with an intense, visceral feel coming from the drums and bass. There are some good synth sounds and noises, too: the filter synth with the nasal drawl, the pulsing bass and the siren noises

especially. But the sound of the stabs kills the vibe of everything around it. The thin string synth sound is way too soft and light. It needs to be attacking, spitting, biting, and it needs to be on fire at this point. Imagine the sort of sound someone like the Prodigy would use for a run like this.

Construction-wise, it's just two sections going round and round for two and half minutes on quite a linear level - a little more variation, more light and shade, would detract from the weak synth sound. A drop, a third section and some dynamic builds would bring a bigger impression to the piece.

This has the makings of a good tune, but it will take a lot more effort and attention to detail to bring the best out in it. Despite what everyone seems to think these days, making a big tune isn't a simple matter.

What the artist says:

"Break Inn features a beat with strong grime and dubstep influence. Its name is based around its gritty sound and the alarm sample, which is heard throughout the track. When I made the beat, it started out with the 'icy', up-tempo chordal stabs you hear in the chorus. I then integrated the drums and bass with the melody."

Equipment used: Apple MacBook and Logic Pro 8, Soundcraft M12 mixer, KRK Rokit 8 monitors, CME UF8 controller, Akai LPD8, Edirol UA-24EX interface

MODEL609 Model609

Artist: Ivan Nemec
Contact: www.myspace.com/model609



> With the clue in the title, this short but sweet piece wears its influences on its sleeve. It's rare for a tune on these pages to receive criticism for being too short, but there are some great ideas that deserve to be explored and developed into a more complete track here.

The opening filtered synth line is a great hook, which also fleetingly appears in a couple of places. The bouncing delayed sequence through the spoken verses creates a very strong weave, which, together with the character-packed vocal, feels like it should lead to a pay-off chorus section afterwards, perhaps with some angelic female 'robot' voices.

The slide bass motif provides a strong anchor, and the modulating pad brings a soft airiness. Rhythmically, the beat is interesting in its anonymity, although the snare sound is quite boring. At least Ivan avoids using a Kraftwerk backbeat.

Overall, the mix is good, especially in the way that the sequencer picks up from the vocal. The busy snare pattern creates a bit too much clutter in the upper-mids perhaps, but apart from that, the only other crime here is laziness.

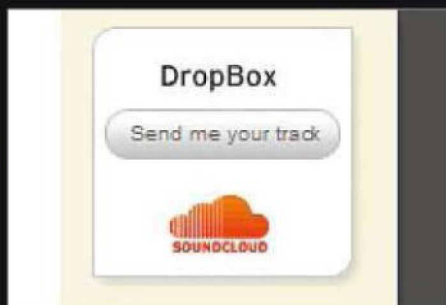
What the artist says:

"This song was recorded and mixed at home. I was inspired by the sound Exodus Arp II of Synth1, which provides the background theme. For the cymbals, I used human beatbox bank from RM IV, which reminded me of the sound of a dishwasher and inspired the lyrics. For the initial theme and robot-like voice, I used Genesis."

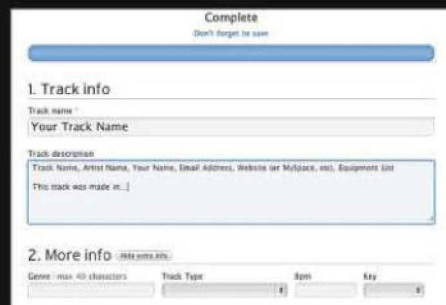
Equipment used: Acer Aspire PC, Edirol UA-25, Mackie 1202-VLZ3 mixer, Yamaha HS50M monitors, Rode NT1-A mic, Mackie Tracktion 2, Ichiro Toda Synth1, LinPlug RM IV, Ummet Ozcan Genesis, HERC Abakos, CM-303



SoundCloud makes sending and receiving music easy. Anybody can sign up for a free account and start sharing tracks straight away, although you don't even have to do that to submit your track to *Reader Music*...



1 > Go to www.computermusic.co.uk and look on the right-hand side of the page for our SoundCloud DropBox widget. Click **Send me your track**, then **Choose a file** and select your track.



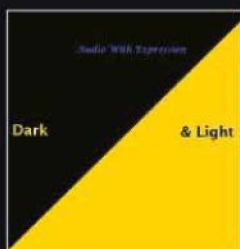
2 > Enter **all** of the following in the **Track description** box: track name, artist name, your name, email address, website (or MySpace), equipment list and a brief description of how your track was made.

AUDIO WITH EXPRESSION

Dark & Light

Artist Rob Holden

Contact awemusic@blueyonder.co.uk



> At 9:50, this makes up for the brevity of the other two pieces, and after sitting through it all, you'll be thankful for them. This is a stream of musical consciousness with moments of extreme beauty and moments of excruciating agony. Essentially, it's an ambient tune with lots of pads, bells and strings interacting and

responding to each other in an almost spontaneous, improvised way. Overall, it has a warm and pleasant feel, with the rich bass pads underlying brighter bells, and soft synth lines intertwining and countering.

It's far too long, however. With a bit of judicious editing, it could be a very strong piece of thematic music. There are whole sections that don't work and could be lost to tighten the whole thing up. For example, the section from 1:40 to 2:40 could go without any regrets whatsoever. It's like being bored by a friend's holiday snaps – yes, it's a personal piece, but we have to sit through it, so be considerate and leave out the dull bits! The aforementioned minute is nothing but a rough doodle in between two sublime moments, and it arguably ruins things for both sides.

On the whole, though, this is a dreamy soundscape with some very wistful melodies to get lost in.

What the artist says:

"I was on a business trip for a week for a large software installation. It did not go very well the first half of the week, but was eventually successful. I had all evenings to myself and composed this piece to reflect my mood."

Equipment used HP/Compaq 2510p, Steinberg Cubase 4, Wusik Wusikstation 5, u-he ZebraCM, Gamecom Plantronics headphones, Genelec 8020 monitors

3 > Click **Upload new artwork** and choose an image. Confirm that you agree to SoundCloud's **Terms of Use** towards the bottom of the screen, hit **Send Track** and you're done!

What's wrong with my mix?

Taking a break from his mad schedule of mastering albums and running a record label, Tim Oliver lends a critical ear to this month's featured reader demo

Producer Tim Oliver



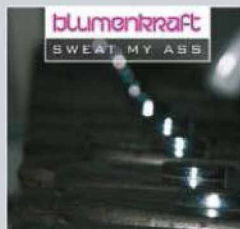
Tim's been a very busy boy indeed, producing Nicole Fermie's album for release on his own Top Cat label, while recording an album for Hoba Hoba Spirit – Morocco's equivalent to U2 – as well as mastering various acts on Real World Records.

BLUMENKRAFT

Sweat my ass

Artist Marc Roosli

Contact www.blumenkraft.info



> You don't get more immediate than this synth-pop ditty from Blumenkraft. It's a post-ironic take on an exercise video – pure bubble-gum pop in an 80s electro style, oozing radio appeal. It's simple, direct and fun, and I can't help but like it.

You might describe this as musically 'challenged', starting, as it does, with a modulation over a fifth interval every bar and ending on the same thing five minutes

later without change; but it somehow retains interest with all the coming and going, and the section overlaps. It's hard to accurately pinpoint what exactly constitutes the chorus and verse, although the sassy girl vocal carries the main hook and clearly forms the bridge/chorus, with the male spoken vocal most likely to be called the verse – although this also appears in and around the chorus vocal. The blurring of sections is increased by the two-bar patterns and the way changes occasionally occur after two bars rather than the orthodox four.

I love the simplicity of the music, but it could do with a change in the middle, pedalling on the same chord rather than modulating. This might build suspense over a section, and the release when it finally goes to the fifth could potentially be orgasmic. That said, there are drops and builds within the existing arrangement that do a fair job.

The female vocal makes the track. It's got throwaway attitude by the bucket-load and the loose double-track enhances it. The lyric is humorous but also delivers a punch, and the robotic male vocal contrasts well. The rhythmic breath and marching stomps are great, too.


The pumping eighth-note rhythm provides the drive, while peripheral sounds provide the skip. I like the human timing imperfections in some of the playing and loops, and the 'soloing' synth gives plenty of energy. I think it could contain some more low-level percussion, though, without taking anything away from the eighth pulse.

The recording is strong, and the minimal production approach makes it hard to mess up. The level of the backbeat clap is a little on the quiet side possibly, but the balance of vocals and overall tone of the mix is excellent.

What the artist says:

"Sweat my ass is a catchy dance track, requiring a sense of humour. One evening I was playing with Kore Player, and Ciara, my wife, heard what I was doing and started singing along as a joke. Amid the fun, I recorded her vocals, then spent some time layering up instruments."

Equipment used Dell Precision T5400, Tascam US-122, Studiospares mics and monitors, Mackie Tracktion, NI Battery, Kore Player and Soundpack, IK Multimedia AmpliTube, Classic Reverb and Delay



cm Producer Masterclass

PHONAT

A rising star of the electronic music scene, Michele Balduzzi takes time out of his increasingly busy schedule to show you some of his studio secrets



Breaking into the big time

> Over the last five years, Italian Michele Balduzzi, also known as Phonat, has made a name for himself as one of the finest dance music producers in the UK. We caught up with him to find out how he ended up making music in a Southwark studio, rather than enjoying the sunshine of Tuscany, from where he hails.

"About five years ago, breaks was quite big, particularly Plump DJs and Stanton Warriors. I was making that kind of thing, but I wanted to get out of my bedroom and work with pros, so I started sending demos to all the breakbeat labels that I knew."

Michele's dedication to perfecting his production skills paid off, and his tracks caught the attention of a UK-based label.

"My first release was on Heavy Disco, the sister label of [Phonat's current home]

"I got more involved with the Young Punx project, producing some of their records"

Mofohifi. That's how it started, and I began collaborating more and more with Hal Ritzen, who had his Young Punx project, and was running the more housey Mofohifi. I went to see him play in Italy and played him some of the material I was working on.

"I told him I wanted to move to London because I want to be a professional, and that's the right place to be for what I do. He said, 'Come over, we can work together on different stuff and see how it goes'. It wasn't

School of rock

Although Michele's productions are primarily electronic, his love of music was first sparked by the sounds of hard rock.

"I started making music by playing guitar. I was mainly into AC/DC. I'm a big fan! I always wanted to be a guitar hero, but I could never be bothered to study properly. I tried to, but when you're young and lazy it's much easier to just mess around on a computer! When I was 14, my dad bought me Daft Punk's *Homework* and I was fascinated with this whole new world."

This strange new electronic sound captivated Michele, who endeavoured to learn more about it.

"Back then, less people had computers, and knowledge of synths and music production was rarer. When you



Daft Punk were Michele's introduction to electronic music, but guitars and hard rock, particularly AC/DC, were his first love

listen to a rock band, it's easy to hear what's going on – here's a guitar player, here's a drummer, here's a bass player... With electronic stuff you don't know what the hell's going on. What's that noise? How do they make that sound? Your ears just aren't used to it. So when I started getting interested in electronic music I got my first copy of Cubasis from my dad, which I ran on a very old PC!"

like a job, so I wasn't sure what was going to happen! When I moved here at first, it was like a part-time thing, in and out of the studio; then I got more involved with the Young Punx project, producing some of their records. At the same time I was developing my Phonat brand."

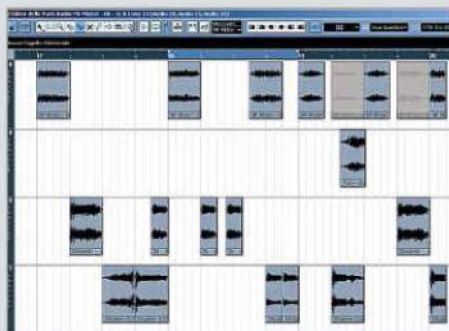
Since moving to London, Michele has worked on a number of Young Punx productions for their debut album *Your Music Is Killing Me*, remixed the likes of Trafik and Sharooz, and completed his eponymous debut album which, while rooted in house, also includes hip-hop, breaks, DnB and rock influences. The track

Learn To Recycle in particular showcases Phonat's stylistic flexibility, starting out at hip-hop speed, building up to an electro house-tempo stomper, before finally climaxing with a slamming DnB crescendo.

In this tutorial Michele shows how he creates some of his trademark sounds, including pumping sidechain compression-style ducking and crazy cut-up vocals. Check out the video on the DVD to see and hear how the Phonat sound is created almost entirely in the box using a modest selection of software and plug-ins.

Web www.phonat.net

> Step by step Cut-up vocals



1 > One of Phonat's trademarks is the cut-up vocal effect, reminiscent of Todd Edwards and Akufen. "The trick is to play around with them a lot," says Michele. "It's really easy to end up with something quite messy that doesn't make any sense. Like playing guitar, you can't just play any notes randomly – you need to play some music! You need to make sure everything flows in an organic way and makes sense."



2 > Each of the cut-up sample channels has its own CamelPhat plug-in, with the filter cutoff modulated via an LFO, each LFO set to a different timing. This gives more movement to the sounds, as the rhythm of the filter cutoffs changes constantly.



3 > "When you've created your loop, bounce it down to another channel so you can work on it separately," says Michele. "In this particular case, I've used it in the introduction with a ring modulator and a filter. I added the same samples on top from the original channel, so the effected version fades away and the filter opens as it goes into the main loop."

Kit list

HARDWARE

Event Project Studio 8 monitors
Yamaha 01X mixer
MacBook
Korg microKorg
Gibson Les Paul Studio
Fender Stratocaster

SOFTWARE

Windows XP
Cubase SX3
Camel Audio CamelPhat
Sugar Bytes Unique
Native Instruments Massive
Native Instruments Guitar Rig 2
Sonalksis TBK3
Yamaha Final Master
LinPlug CronoX 3
Korg Legacy Analog Edition
iZotope Ozone
Waves plug-ins

Selected discography

SINGLES

One Million/Machine Noise - Heavy Disco (2005)
Just The FX/Burnin' - Splank! Records (2006)
Incredible Sound EP - MofoHifi (2007)
The Quake - Splank! Records (2007)
Ghetto Burnin' - MofoHifi (2008)

ALBUM

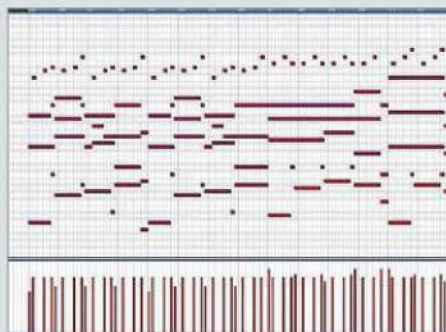
Phonat - MofoHifi (2008)

REMIXES

The Young Punx, Rockall - MofoHifi (2006)
The Young Punx, Fire - MofoHifi (2007)
The Young Punx, Your Music Is Killing Me - MofoHifi (2007)
Sonny J, Handsfree (If You Hold My Hand) - Stateside (2008)
Trafik, Le Beeatch - GU Music (2008)
Andy Hunter feat. Mark Underdown, Stars - Netzwerk (2008)
Sharooz, Adrenalize - MofoHifi (2009)

> Step by step

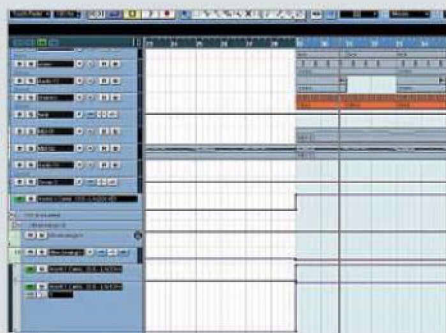
Faking sidechain compression with CamelPhat



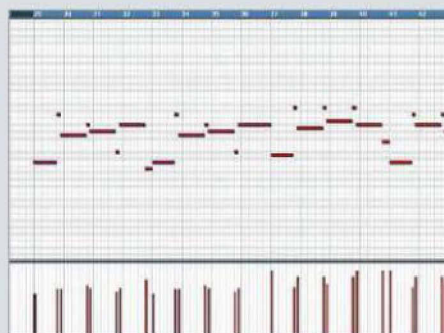
1 > The main synth part comes from a sawtooth-based AAS UltraAnalog patch. "The most important things are the melody and the harmony. They need to be epic, because on big sound systems at clubs - together with the volume and the environment - they give you a lot of emotion. That's the trick to achieving that French house effect," says Michele.



2 > Michele uses Cubase SX3, which doesn't feature the native sidechain routing found in later versions. To get a sidechain compression-style effect he uses CamelPhat on the UltraAnalog channel. The effect's ramp LFO is routed to the main volume level and synced to quarter-notes. This causes the volume of the synth to duck on each beat.



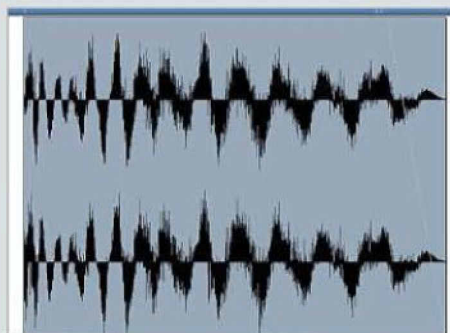
3 > This gives the track that classic, pumping French house sound, but the CamelPhat effect is active the whole time, rather than just when the kick drum sound plays. To counter this, Michele automates its LFO, so that it only activates when the kick drum starts playing. This makes the effect virtually indistinguishable from sidechain compression.



4 > The same pumping trick is also used on the bassline, which is created with Korg's Polysix synth. "It basically just makes one sound, but it's really good for that sound!" says Michele. To exaggerate the effect even further, the UltraAnalog and Polysix are run through a bus, into which another CamelPhat is inserted.

> Step by step

Making a punchy drum sound



1 > To get a tight snare sound, Michele shortens the snare sample on the audio track with Cubase's Snap function turned off to get just the right length. To make this sound more natural, a quick fade is applied to the end of it.



2 > The other drum sounds used include a secondary snare run through a Waves RVerb effect. This occasionally plays over the main snare to create a variation in the sound. The kick drum sample is a straightforward affair playing quarter-notes. The shaker is given a funky feel via the application of some 16th-note shuffle.



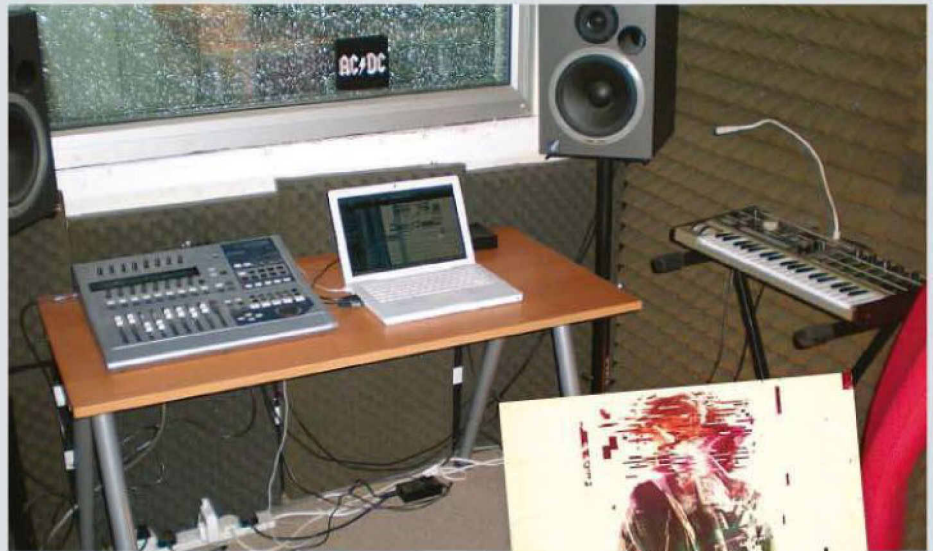
3 > The drum sounds are also routed through a bus, where Yamaha Final Master, Sonalksis TBK3 and iZotope Ozone are applied. These compression and mastering effects make the drums louder and, in the case of Ozone, boost the bottom end slightly using the effect's multiband harmonic exciter.

Windows into his world

A lot of producers use Macs, but Phonat is the first we've encountered who runs Windows on his Apple laptop rather than the OS X operating system for which it was built.

"I started working on PCs because Macs were more expensive. All my software is for PCs, so when I upgraded to a MacBook and found out about Boot Camp [a utility that helps you install Windows on Macs] I thought, 'Why Not?'. I plan to get all the Mac software one day, but it's a big project because you have to install everything and make sure it's working. I'm always in the middle of projects, so at some point I'm going to have to stop and say, 'I'm going to do this!'.

"I've tried to use Logic. In the past few years, since Apple's owned Logic, it seems as if everyone's using it, but I really like the audio editing of Cubase and I can't get used to the way Logic works. Logic is brilliant - all its plug-ins are awesome, whereas with Cubase I use a lot of



Michele uses Windows XP on a MacBook, but he intends to switch to OS X when he gets some Mac software. Then it'll just be a matter of finding the time to install it...

external plug-ins. In fact, I don't use many of Cubase's native plug-ins at all. But the advantage of Cubase is that its audio editing is pure freedom. You can cut, copy and paste, reverse and have a little separate window so everything is tidy. You can do the same with Logic, but it's more difficult.

"When I upgrade I'll keep the Windows XP side because there are some bits of software and plug-ins they don't develop anymore. It's good to keep these just in case you want that particular sound. The most important thing is being really familiar with what you're using. It's good to upgrade because there are always improvements, but it's more important to get the best out of what you use, rather than being obsessed with upgrading."

Do you have any other advice for aspiring producers?

"You need to be hard on yourself. You must never be satisfied and aim for more and more. Be happy with what you do, but compare it with

to the label. It's like four or five jobs in one.

"Some people do mastering in a big studio but not that many now, and if you're a beginner you can't afford to do that, so you need to reach a certain standard in every part of the process. In my experience it's just a matter of time, training and getting opinions from people who you can trust to be honest. It's important to be able to analyse what's not working - is it the idea, the sounds or the engineering?"

Finally, what plug-ins do you like?

"As you can probably tell from the video, my favourite piece of software is CamelPhat. It's an amazing tool that's very creative and useful for the modern, distorted, Justice-style sound. I also use Massive quite a lot. It's very characteristic in that it's digital and recognisable-sounding, but the potential is infinite. You can route everything and it allows you to do whatever you want. It's really opened up the doors of synthesis.

"For mastering, I use iZotope Ozone. It's brilliant even on individual channels. You've got

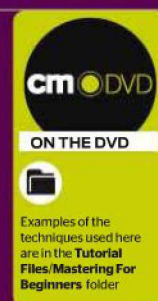
"It's more important to get the best out of what you use rather than being obsessed with upgrading"

the best and see how far you are from that. Try to analyse your weaknesses and work on them. You have to train your ears, which are your main tools.

Nowadays, it's not enough to have good ideas and be a great composer; you also have to be a good sound engineer, producer and mastering engineer. You need to be able to start from scratch and hand over a finished product

everything you need - compression, EQ, spatial widening, limiter - all the tools are there. For creative dynamics, I like Yamaha Final Master, which seems to be quite unknown but has a fantastic colour, and it can add a bit of warmth and digital distortion in some situations. I also like Sonalksis TBK3, which is just a big knob you can use to squash stuff. It's really good to run sounds through it and see what happens. It's a very nice piece of kit." **cm**

Michele once had dreams of being a rock guitarist, but decided he preferred computers



Mastering for beginners

Get your mixes sounding bigger, bolder and better with our step-by-step guide to the final stage of the music production process

> **There's a lot of myth and mystery surrounding the art of mastering. Is it really necessary, should it be attempted by amateurs in the home studio, and why's it so important? On a professional level, it's suggested that mastering is best left to specialist engineers who really know what they're doing, as it's quite easy to destroy a mix through 'bad' mastering. However, there's a lot to be said for understanding the basic principles behind it, and it's absolutely worth having a go yourself. After all, the experts didn't become experts without starting at the beginning, right?**

So, what is mastering? In a nutshell, it's the final process your music goes through before the CD is burned, the vinyl is pressed or the audio file is uploaded. It involves a series of standardised practises (EQing and peak limiting), some rather less common forms of

processing (noise reduction and stereo width adjustment) and a few things entirely non-musical (sample rate conversion, addition of ISRC codes, dithering). It can be a deep and complicated process, which is why it tends to be kept distinct from mixing, and the reason it carries a certain stigma.

Mixed messages

OK, but what if your mix holds its own anyway? Well, in isolation, it might well do - but does it really match up to 'the competition'? What's it going to sound like on different speakers to the ones in your studio? Or in a different room? Can you trust your playback equipment, or your ears for that matter? Is that brickwall limiter on the master channel really a good thing? Mastering engineers aim to get the music up to commercial standard. This means appearing as loud as the latest releases and sounding as good

as possible on a variety of different systems - a sizeable task!

Having said that, mastering won't improve a mix that simply doesn't cut it in the first place. Certainly, you can tidy up rogue frequencies, and get everything pumping evenly, but if the foundations simply aren't there to begin with, no amount of mastering expertise will be able to save a bad track.

Can anyone attempt mastering of their own tracks? Certainly! Even if you don't end up actually committing to anything, it's good to understand the process. Being aware of what's involved in mastering can improve the way you approach the earlier stage of mixing.

In this comprehensive guide, we'll show you how to get started on the final stages of your own tracks on your Mac and PC, using nothing but the plug-ins you probably have readily available in your DAW.

The history of mastering

At the start of the 20th Century, a large horn (like that of a gramophone) was used to record sounds in the studio. To make your instrument louder, you moved closer to the horn. It was incredibly primitive by today's standards, but many classic (and, indeed, classical) records really were made that way.

The vibrations of the music caused a cutting machine to inscribe grooves onto a metal disc covered in wax - the same principle as modern-day vinyl. Therefore, recording and mastering were in fact one and the same process, until magnetic tape came along and the mastering (and mixing, for that matter) no longer had to be done at the same time, or even in the same studio.

With the advent of CDs in the early 80s, many vinyl-imposed mastering limitations (trade-offs between volume and track length, for example) became less of a factor. Extremely low- and high-end sounds were now audible, and tracks could be made significantly louder.

25 years on, and software has come an incredibly long way in emulating boutique and classic mastering processors, and has brought the added benefits of affordability and absolute purity of signal path. Companies like Waves, TC Electronic, Sonnox, UAD and IK Multimedia specialise in producing top-of-the-range plug-ins for mastering engineers, to be used either exclusively or in conjunction with outboard gear.

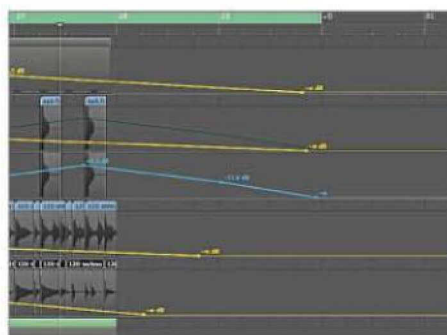
> Step by step Before you start



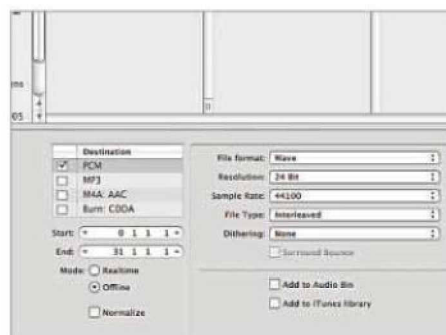
1 > The first thing to do is get your track ship-shape and ready for export. Be sure to bypass/remove any compressors, EQs and limiters from your master channel. If this radically changes the sound, you may need to re-evaluate the mix. You want to keep the dynamics of your music intact without anything clipping.



2 > The more headroom you can get away with, the better (see the walkthrough below to find out how to maximise the headroom in your mix). About 3-5dB is recommended, but anything down to -8dB on the meter will help you later on by giving your mastering plug-ins more room to do their job. The odd peak is fine, but you need to keep the majority of it down.



3 > Give yourself enough of a gap after the music has finished for any reverb tails to expire and fade-outs to, well, fade out. You don't want to be chasing the end of your exported region if you've been a bit lax with the right-hand locator.



4 > Once you're happy with the mix, you're ready to export! Be sure to do it at the correct sample rate and resolution. For most purposes, 44.1kHz is still fine, but use the highest bit-depth possible, ideally 32-bit float format. We're using 24-bit, since that's the highest bit-depth that Logic can export at.

> Step by step Maximising headroom



1 > To get as much headroom as possible, turn down everything that's going to the master out. So that's any group/bus/aux tracks and MIDI instruments/audio tracks routed straight to the master. Bring each and every one of them down by a few dB until your master output is peaking at around -3 to -5dB.

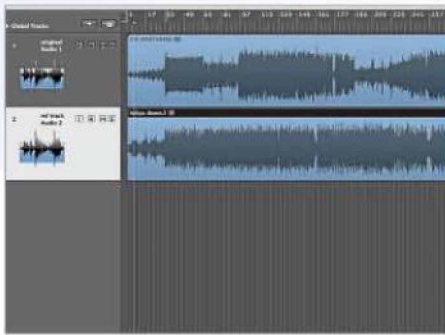


2 > High-pass filter anything that isn't a kick drum or bass instrument, or a pad with significant low-end content. We do this because a lot of sounds carry useless (ie, inaudible amongst other sounds) sub-bass information that just eats up space in your mix. Not only will this free up some headroom, it'll also add a certain degree of clarity to your bottom-end.



3 > Look at all the plug-ins in your track and see if any of them have a make-up gain setting activated. If so, try turning it off and readjusting your mix accordingly. At this stage of the production process, you don't need everything hitting 0dB - a conservatively balanced mix will be easier to master than a completely un-dynamic block of audio.

> Step by step EQ: the balancing act



1 > For mastering, you need a decent pair of monitors, a set of hi-fi speakers and some good headphones. We can't stress the importance of A/Bing your efforts against professional masters enough - it's the best way to ensure that you're making progress. Also, every so often, bypass all your mastering plug-ins to double check that you're not destroying the original mix! (Audio on the DVD: **Audio 1 Original**)



2 > You can keep an eye on stereo phasing issues with a gonioscope - your DAW may well have one built in and Logic's is contained in the MultiMeter plug-in. Next, we'll get onto the first stage of mastering: EQ. Linear phase EQ is often used for mastering, as regular EQ can introduce a variable amount of phase shift across the frequency range, which is usually undesirable for mastering.



3 > Let's deal with the bottom end. Start by determining the lowest point at which you can place a high-pass filter without causing any audible change. Here, it's 38Hz (identified by sweeping a narrow-Q 6dB boost across the low-end), which is where we roll the signal off. Although this frequency range is hard to hear on some systems, it can still be felt in a club, so be careful with the filter slope.



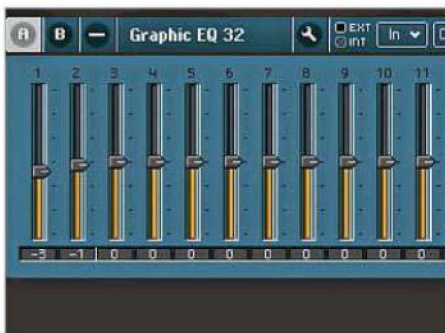
4 > Our kick drum's a little woolly, so we apply a 1dB boost at around 86Hz, and another at around 2.5kHz. Pay very close attention to what else exists in the range you're amplifying or attenuating, though - being over-zealous with EQ can detrimentally affect your whole mix. Note, too, that mastering EQ is something of a balancing act: a dip at one end can feel like a boost at the other.



5 > Something else that may well crop up when comparing your mixes to commercial releases is lack of top-end. We've boosted 14-16kHz (referred to as 'air'). Again, 1dB is enough to make a difference. Be careful not to boost much above that, as there's not a lot of useful harmonic content up there - you'll just be emphasising hiss.



6 > It's useful at this stage to check your mix on a spectral analyser. With ours, there's some confusion around 270Hz, so we use a fairly narrow Q and reduce that range by about 1.5dB. This helps define the bass part a bit. Another boost around 6.5kHz adds some presence to the mix, too.



7 > Mastering EQs come in a range of shapes and sizes. With a graphic EQ, for example, you can easily manipulate a number of different frequencies. There's also no real reason why you can't use your favourite 'character' EQ, as long as it doesn't colour the sound too much.



8 > You can get creative with your EQ, too. Our bassline is popping nicely around 140Hz, and with slight boosts at 280, 560 or 1120Hz (multiples of 140), we can bring out its upper harmonics. Don't boost all such frequencies, though, as there'll be other instruments occupying them. Also, this technique won't be as effective with sounds that lack harmonics, such as sine waves. (Audio: **Audio 1 EQd**)



9 > Be very careful not to overcook anything. You shouldn't be chasing massive sonic changes at the mastering stage, so any EQ boosts you make should really be of no more than 1.5dB at most - the picture above shows overdone EQ. (Audio: **Audio 3 Overcooked**)

Parallel compression

Also known as 'New York' compression, parallel compression is simply the process of mixing the highly compressed version of a signal with the dry (uncompressed) one. Some compressors have a dry/wet mix control for this very purpose, but many don't, requiring you to instead set up the compressor on an auxiliary bus, then mix the two signals to taste.

The goal of parallel compression is to retain the uncompressed dynamics of the dry signal, and add to it the body and depth of the wet, compressed signal (usually set to 'smash mode' - high ratio, low threshold). Listen out for latency issues when applying parallel compression, though, and if you have problems, copy the compressor plug-in to the dry channel and set the Ratio to 1:1. This will introduce the same plug-in delay to the dry channel, but without any compression being applied (1:1 means there's no reduction taking place).

Parallel compression can be used to great effect on individual instruments, too, filling out a weak lead line, beefing up lifeless drums/percussion, or adding weight to a timid vocal part, for example. And the same applies to the master channel strip, where compression is great for gluing a mix together, but sometimes at the expense of dynamics and liveliness - parallel compression can be a very effective solution to this.

> Step by step Mastering compression



- 1 > Set your compressor to **RMS** mode (not **Peak**), turn the **Make-up gain** off, and reduce the **Ratio** and **Threshold** to minimum, so that almost nothing is happening. Now, move the **Threshold** to the point where only the peaks in your track are compressed, thus retaining the majority of the dynamics. Here, we've settled on a modest **-8dB**.



- 2 > The **Ratio** effectively determines how hard the compressor works. We've set ours to **2:1**, which means that for every 2dB the signal exceeds the **Threshold**, it'll only actually increase in volume by 1dB. Again, we're looking for subtlety - nothing too extreme! You want occasional gain reduction, but nothing that hurts the dynamics and feel of your music.



- 3 > How you work your **Attack** and **Release** settings will depend on the nature of your track. You don't want anything too quick for mastering, though. We've set an **Attack** time of **29ms** and a **Release** of **68ms**. These dictate how quickly the compressor works. If you're unsure, try the **Auto** setting for the Release, which most compressors offer.



- 4 > Your compressor might boast a mix control (for parallel compression - see boxout) and soft clipping. We've set the **Mix** at **70%** and activated the **Soft Clipping**, which adds a bit of character to the upper-mids and increases the gain a bit. Logic's Compressor also has a built-in limiter, but we'll use its dedicated one for more control. (Audio on the DVD: **Audio 4 Compressed** and **Audio 5 Smashed**)

> Step by step Limiting



- 1 > A limiter is like a compressor set to an infinite ratio - ie, nothing exceeds the Threshold. You should use it as the last thing in your mastering chain, to get a solid volume level without clipping. These days, limiting is almost entirely done in the digital domain for accuracy. We start by loading Logic's Limiter with a **Output Level** of **-0.03dB**.

- 2 > Certain styles of dance music lend themselves to being over-limited, but the same can't be said for acoustic material or anything in which sensitive dynamics are important. We've added a generous **4.5dB** of input gain to our deep house track, but the important thing to watch is the gain reduction meter...

- 3 > If the gain reduction meter is constantly reducing 2-3dB, then you'll be squashing the life out of the music. Limiting is easy to get wrong, but it's essential when it comes to getting your music up to commercial standard in terms of loudness. (Audio: **Audio 6 Over-Limited**)

> Step by step Multiband compression



1 > Instead of regular compression (or even in addition to it) you could use a multiband compressor, which works on separate, distinct frequency ranges. Here, we're setting band **1** to cover **20-110Hz**, band **2** at **110-1000Hz**, band **3** at **1-8kHz**, and band **4** at **8-20kHz**. Again, reduce your **Ratios** and **Thresholds** to get a good starting point, where not too much is happening.



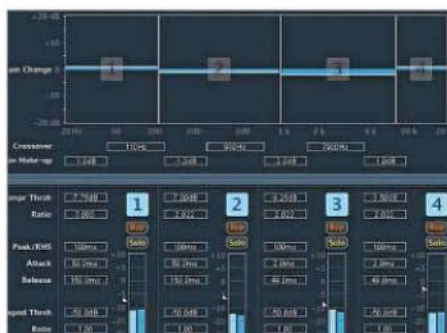
2 > Tweak the range and compression of each band to get a natural sound - take advantage of your compressor's band solo function, if it has one. For our lowest band, we set a **Threshold** of **-13dB** and a light **Ratio** of **3:1**. This tames the sub-bass part nicely. We leave the **Attack** and **Release** at **50** and **150** respectively.



3 > There's more movement in the next band up, which is rich in modulation and harmonics, so we apply less compression there, keeping things bouncy - **2:1 Ratio** with a **-7dB Threshold**. We also bring the sub-bass band up a little bit in gain to match that of the low-mids. Listen to how your kick and snare hit the thresholds, and don't flatten them!



4 > Now for the third band, covering much of the all-important treble. If your track has a vocal, pay attention to the crossover frequencies, as depending on the singer's voice, you may get some very odd effects using certain splitting points. There's a lot going on in the treble, so we set a **Threshold** of **-20dB** and a **Ratio** of **2:1**, adding a bit of body and depth.



5 > The top band doesn't need much, and over-compressing it will just bring up harsh cymbal overtones and hiss. A **Threshold** of **-3dB** and a **Ratio** of **2:1** stops any spot FX and hi-hat rolls standing out too much. We also set all the band gains in a scooped curve. Finally, we ease off on the mid-range **Threshold** a bit, as it sounds a little out of place.



6 > Whether to activate your multiband compressor's auto-gain or not is down to personal preference - you can always leave the final gain-staging to your limiter. If your plug-in has mix and clipping controls, experiment with them to see if they make any positive difference to your master. (Audio on the DVD: **Audio 7 Multi-pressed**)



iZotope's amazing Ozone features multiband dynamics, multiband harmonic exciter and multiband stereo imaging units

Are multiband compressors a good thing?

Many engineers view multiband compression as nothing but a damaging process, claiming that if you're hot with your EQ, you shouldn't need to fall back on such witchcraft. True, with single-band compression, the skilled operator can set the threshold and ratio and EQ into it, taming any frequencies that are hitting the compressor's threshold improperly; but if you're careful and don't ram anything into the roof, there's no reason not to use multiband compression. Yes, it can colour the sound of a mix, but with a good plug-in, such colouration should be minimal and might even have a positive effect.

Keep a spectral analyser open on your master channel and observe the effects your tweaking has on it when you adjust the separate frequency bands. If any huge peaks or troughs appear, you've probably either overdone the compression or set a band right in the middle of a particular instrument's range. Be especially wary of this last point: even if you're only using two or three bands, you still need to be completely aware of what's sitting in each one. The kick drum will be either slightly higher or slightly lower than the main body of the bassline, so compressing them together will add some 'mix glue'. Bear in mind, too, that reverbs tend to occupy higher frequencies, as most enable rolling-off of the bottom end, so don't compress your middle/top-end any more than strictly necessary.

9 PRO MASTERING TIPS



If your top-end still isn't right despite your best EQ efforts, you might want to try an exciter or enhancer. Whereas EQs can accentuate noise, and only amplify what's already there, Exciters raise the harmonics of the fundamental tones found in the recording, brightening dull mixes. As with everything in mastering, though, don't overdo it!



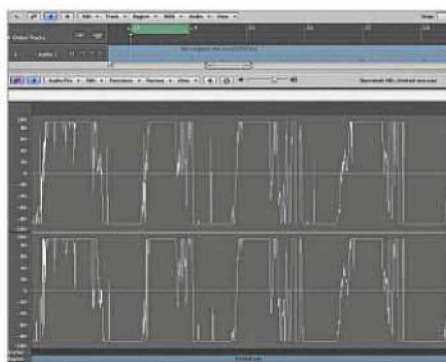
Adjusting the width of a stereo recording usually means making it wider, but an overly wide mix can be narrowed, too. There are plug-ins that can do this, but they need to be handled with care, as they can cause phasing issues and weaken a tough mix. Be sure to leave everything below 100Hz alone, as this area carries no directional information and has a much greater impact in mono than stereo.



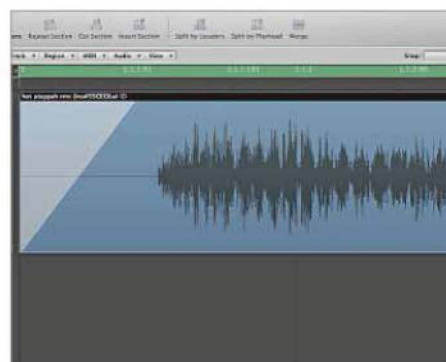
You might want to apply noise reduction at times, especially during long fade-ins or -outs. This can be necessary because of bad recording or a number of other factors. Inevitably, though, unless you have very high-end equipment, noise reduction will affect the harmonic content of the music to some extent, so there'll need to be some measure of compromise.



Expansion can be useful for pulling some dynamics out of a squashed mix. Expanders work in almost the exact opposite way to compressors, increasing dynamic range rather than compressing it. They can't perform miracles, though, and can in fact add distortion, so if you have to rely on one, perhaps you should think about having another go at the mix.



Keep your limiter's output (sometimes called the 'ceiling') under 0dB. Although you might want your track to be as loud as possible, some CD players can glitch if too many samples hit 0dB, and some disc duplication plants may reject the disc because their equipment determines the 0dB samples to be 'errors'. Set your limiter to **-0.5dB** or thereabouts.



Some plug-in limiters offer a lookahead function. This can cut the beginning of your track off completely if your left locator (export start point) is set too close to a zero-crossing. So, if you use lookahead, leave a second or two lead-in and -out for the bounce, then tighten up the start and end of the final, mastered audio file.



When mastering an EP or album, import all the songs onto separate audio tracks, so that each one can have its own EQ applied and the whole lot can be balanced accordingly. Route all of them to the same bus, then compress and limit them together for consistency.



Very rarely, you might want to use a mastering reverb to 'glue' a mix together. Convolution is your best option here, but avoid plate/spring emulations and be gentle with the wet signal – no more than 10-15% – and roll off all the wet signal below 100Hz, too.



Last but not least – and at the necessary risk of repeating ourselves – don't overdo anything! Big EQ boosts, high compression ratios and/or super-low thresholds can ruin a track. You can still be creative while being subtle. Be sure to keep an eye on your spectral analyser plug-in, ensure that the master channel never clips and learn to trust your ears. This is the final process in the production of your tune, so it really is now or never!



Metallica's *Death Magnetic* album caused controversy with its excessively high average volume level

The loudness war

These days, many commercial tracks are mastered to the absolute limit of loudness. If your track's quieter than 'the competition', it'll sound comparatively weak when iTunes shuffles round to it, the DJ will have to whack the trim pot up to bring it into their set, and it just won't cut through your headphones on the train to work. Commercial pop, dance and rock are the most guilty of promoting this increasingly competitive practice, and in a sense, it's really the biggest thing that the mastering engineer has to think about.

Have a listen to a remaster of a classic album and you'll easily notice the difference. For example, a 60s pop record remastered in the 80s would get an average increase of 4-5dB, and today it's nearly twice that.

Thanks to the quality of modern plug-ins, it is, thankfully, possible to be sympathetic to the dynamics and feel of the mix, yet still get the level good and high. Most plug-in compressors offer an RMS setting, which deals with overall perceived volume, rather than individual peaks, and is thus better for retaining dynamics. Limiters, too, are getting more and more transparent - Sony's Oxford plug-ins, for example, are particularly lauded in this respect.

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Whether your track's destined for a CD release or online distribution might affect the sample rate and bit depth that you master at

The final stages

Once you've pulled your mix back in, disabled all mastering plug-ins, done your final fade-in/-out and are happy with how it's all sounding, you're ready for final export.

Bit depths and sample rates need to be considered. The former indicates the amplitude resolution (how many possible volume levels can be represented digitally), while the latter is the number of times a second that the audio is sampled - the higher the rate, the 'smoother' the sound (the sonic equivalent to video frame rate, if you like). Assuming you've been working at 44.1kHz up to this point, you'll need to bounce at the same rate. If you've been working at 48kHz, you may need to down-sample to 44.1kHz, depending on whether your music is destined for CD or not. CD also demands that your final file is 16-bit, but if your track's going to be distributed online, 24-bit might be an option.

If you need to reduce the bit depth of your master, you might want to use a dithering plug-in to avoid the digital quantisation errors that would otherwise occur. Dithering adds extremely quiet noise to the signal, and while most of the time the difference will be unnoticeable, in long fade-ins and fade-outs, for instance, it can make a difference.

And finally...

Mastering is an essential part of the production process, but also one of the most difficult. At each stage of mastering, you run the risk of clipping, flattening the dynamics and adding unwanted distortion. However, as with most things, you'll only get better at it with experience, so don't be afraid to get stuck in and have a go. Just remember to constantly check your track against commercial releases, keep that spectral analyser running and test your master on as many systems as you can. Good luck! **cm**



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The **cm**
guide to

HIP HOP

vocal production

Get your hip-hop jointz sounding better than ever with our top-to-bottom guide to creating full, clean, stand-out vocal tracks

> At a time when every bedroom rapper thinks he can create a street banger, there are a few ways to make sure your dope punchlines and sick metaphors stand out from the crowd - and stand out in your mix.

Recording an MC brings a whole new challenge. At its most basic, hip-hop features staccato, punchy vocals of which it's imperative the listener catches every word. Treat an MC like a singer, in production terms, and the verse won't sound right. Fortunately, there are a few simple techniques that you can use to keep that vocal as clean as an ice grill. We'll look at them here, as well as mic choice and positioning, and how to get the best out of an MC in the booth.

Layering

If you want your verses to fill the room with warm, enveloping, heavy vocals, you're going to have to do some creative layering. It might be tempting to simply copy and paste a single part, but unless you want your MC to sound like Robocop, you'll need to record a second layer of vocals, treat it with small amounts of reverb and delay, and apply some finely tuned mixing.

Ad-libs

Those little asides you hear before, during and after a track are unique to hip-hop. You won't

find Chris Martin or Little Boots engaging in random outbursts in between singing. Like skits and the TR-808, ad-libbing has been seriously over-used in hip-hop, but with clever placing and some creative panning, it can still enhance, rather than detract from, your track.

EQ

Positioning the vocals in any mix is a tricky job, but nowhere is it more difficult than in hip-hop, where chronically busy tracks can overwhelm your beautifully crafted verses. We'll show you how to roll off and boost specific frequencies to enable your verses to cut through even the densest of mixes, as well as some creative use of high-pass filters to create climactic effects.

Compression

While it's always tempting to compress the hell out of your MC to get that ultra-full sound, there is another, more subtle way - parallel compression. Using this, you'll be able to get far more control over the sound and punchiness of your verses and hooks.

De-essing

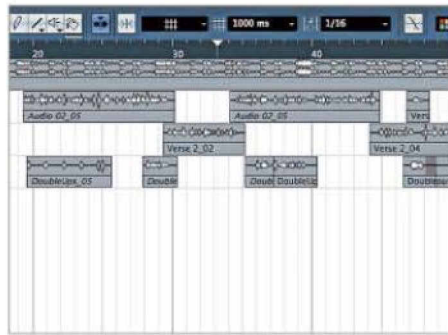
Most of the time you won't need to do this, but rounding off the top end after your parallel compression gives an extra sheen to your lines.



The files referenced in the walkthroughs are in the Tutorial Files folder

> Step by step **Layer up**

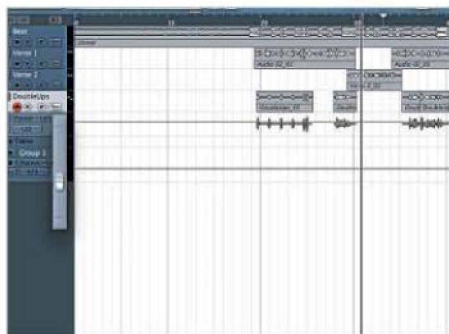
- 1** > We're going to get that wonderful saturated effect that makes your favourite rapper sound like he's the king of the world. To start, we've set up a beat and recorded a verse over it - without any ad-libs or other 'extras'. Few MCs have the breath control to record everything in one take, which is why we've used two tracks to lay down the main verse. (Audio on the DVD: **Basic_Verse.wav**)



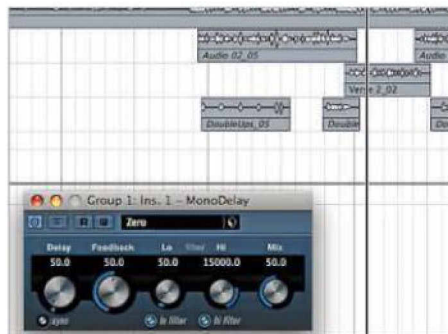
- 2** > The saturated, wall-of-sound effect comes from recording a second version of the verse to run alongside the first. We've done this only with those parts of the track that we feel are the punchiest, but you could do the whole verse again for a TI Southern-style track. The key is to actually record the doubled-up verse from scratch, because simply duplicating it will sound horribly unnatural.



- 3** > Mute the beats, open the mixer and, making sure your main verse takes are at the same level, slightly lower the level of the doubled-up verse until you hear a sound you like. You could set everything at the same level for an extreme vocal sound, but this could cause you problems later, and besides, you'll get better results using parallel compression.



- 4** > Now let's use a little panning to help make the layers come alive. It's probably easier to send the main verse takes to a group channel at this point. Pan the group channel a little bit to the left and the double-ups a little to the right - no more than 25% each way.



- 5** > To make the tracks sound even more full and exciting, we apply a little creative delay to our doubled-up vocal. We're using Cubase's Monodelay plug-in, and, as with the panning, we're applying it very gently. It's probably easiest to use the plug-in as an insert on the group track.



- 6** > Unless you're deliberately going for a monstrous delay effect on your vocals, you're going to want to keep the settings fairly low - we've got them dialled all the way down, especially the **Dry/Wet** mix, which is at **1.4**. The idea is to slightly sweeten the main vocal so that it works better with the doubled-up one.



- 7** > Finally, let's add some reverb to the vocals - unlike the delay, we're applying this to our doubled-up vocal takes. Here, we're using the Roomworks SE reverb, but you can use any plug-in 'verb you like, of course. Apply it as an insert effect on your doubled-up take.



- 8** > Roomworks has a preset called **Double Voice**, which can work well for this sort of thing. Using fairly low **Reverb Time** and **Diffusion** settings will get the effect you need. Again, for most rap tracks you're aiming to achieve an atmospheric, full vocal, so you can keep the reverb low in the mix. (Audio: **Basic_Verse_Doubled_Up.wav**)

POWER TIP

>Get hooked

Although it's fairly common practice to double up only select parts of the main verses, there's definitely good reason to apply the effect to the hook/chorus as well. Given that it's more often than not the focus of the track, you'll want to make sure the MC sounds as saturated as possible at that point. It's also a good idea to get a little more experimental with the panning on the hook - even going so far as to pan the primary take and the double-up hard left and right respectively, if it suits your style.



Don't feel like you should actively avoid using Auto-Tune in your hip-hop tracks, but do handle it with care

Auto-matic for the people

"The worldwide standard in pitch correction" might sound like something you'd want in your arsenal of software, but while Antares Auto-Tune is a fairly ubiquitous plug-in in today's music studio, there's no other production tool/technique guaranteed to polarise a hip-hop audience more. We're talking outright warfare here.

Perhaps it's because rap and R&B producers have pretty much created a whole new sub-genre by using Auto-Tune not just to correct vocal pitch, but to exaggerate it, creating the robot effect so beloved of Kanye West, Lil Wayne and T-Pain. Kanye's latest album, *808s & Heartbreak*, famously uses the effect on his voice throughout.

But in the minds of some hip-hop fans, the effect has been overused to the point of monotony. If you believe the haters, every major hip-hop chart hit has an Auto-Tuned hook. This, they say, is stifling the creativity of MCs, as the plug-in has become the go-to for a sound guaranteed to turn artists into hit machines - lyrics be damned!

This may or not be the case; no matter how many blog posts or forum rants you read, the hip-hop universe has still to come to a conclusion about the plug-in. What is true, though, is that it's been used for years in hip-hop studios - just not to the extent that it is now. After all, T-Pain, who popularised the effect with 2007's *Epiphany*, has argued that it was just a creative way to treat his music that others picked up on and overused.

As with all hip-hop, as long as the lyrics and flow are tight (and beautifully recorded), it shouldn't matter whether you choose to use Auto-Tune or not. With a little work and a lot of creativity, it could be the thing that sets your vocals apart. But like any plug-in, if it's overused, it can end up sounding horrible.

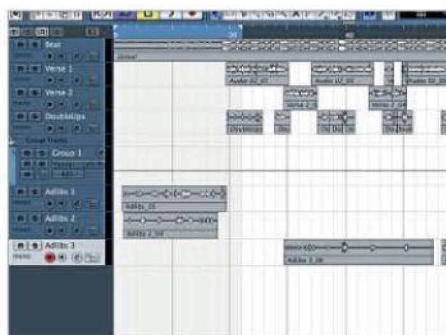
> Step by step Lib movement



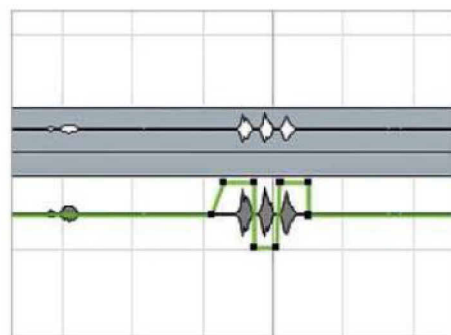
1 > Although a lot of rappers overuse it, a little off-the-cuff ad-libbing at key points can add to the character of a track and make it stand out in the listener's mind - think DMX's assorted barks and growls. Here, we've recorded some straightforward ad-libs in the eight-bar intro of our song, before the verse kicks in.



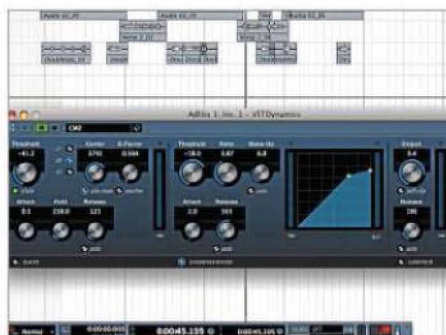
2 > Now, one line of ad-libs is fine, but two are even better - this can give your intro a bit more texture. In our example, we've recorded another set of ad-libs and applied some panning. The first is panned left, the second right - nearly all the way in both cases.



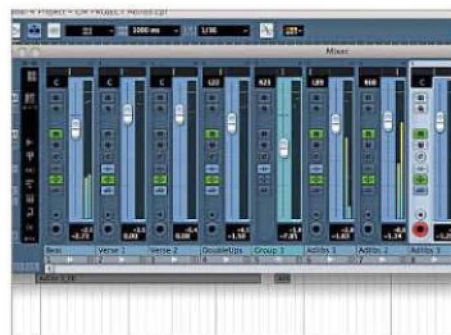
3 > When recording ad-libs under the verse, keep them minimal - you want to enhance rather than distract. A few key ad-libs in the spaces between words or lines can work well. Note how, in our example, 'Oh, word?' comes just after a line, when the gap would be too evident.



4 > There are some tricks you can use to make your ad-libs stand out. We've taken the 'Yo yo yo' sequence and panned it hard left, right, left. This kind of creative panning catches the attention nicely - just be sure to reset the panning for the rest of the ad-libs, though!



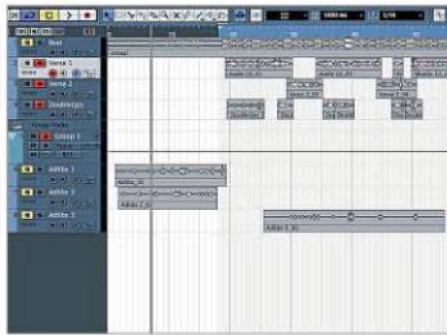
5 > At this point, some compression is called for. You can apply parallel compression if you like, but it doesn't matter that much here - the ad-libs usually require far less punch than the main vocal. We've put a compressor on each channel set to moderate **Ratio** and **Threshold**.



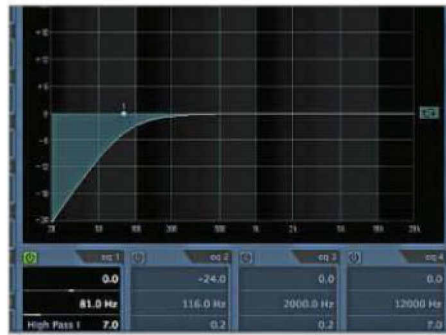
6 > How you mix the ad-libs will depend on several factors. As a general rule, try to have them slightly lower in the mix than the main vocal, though you might want to raise the level for certain effects - check out our 'Chi-ku-pah' effect, which we do want loud. (Audio on the DVD: **Adlibs_With_Beat.wav**)

> Step by step

What's the frequency?



1 > How you EQ your vocals depends primarily on your MC - are they a big, bassy Chali 2na, a scratchy Lil Wayne, or an ultra-high pitched K'Naan? Regardless, though, there are several techniques you can use to bring out the vocals in the mix. Obviously, your beat or samples will have their own EQ settings, but this should help your MC sound a lot fresher.



2 > First, let's get rid of everything we don't need, frequency-wise. Anything below around 80-100Hz can be rolled off using a high-pass filter. For many rappers, this will be outside their vocal range, so cutting it does no harm and enables the bass frequencies of your track to come through better. This cut will also remove any mic stand rumble that might have found its way onto the recording.

POWER TIP

> Mixdown madness

One problem that crops up a lot in hip-hop is that, because of the explosion of (often very good) bedroom producers and the internet, beats regularly arrive as single mixed stereo files, rather than a session file comprising separate components. This isn't too much of a problem, but it does mean that you have to treat your EQ a lot more carefully if your vocals are to sit *in* the mix, rather than on top of it. This is more of a problem at the mastering stage, where careless EQ has the potential to wreck the sound of your verse.



3 > Next, we want to boost a little at 150-250Hz. This will bring out the character of the voice without making it sound too bassy or boomy. With all these adjustments, keep your slopes - the *Q* value - nice and gentle. As a rule, the less EQ you apply to a vocal, the better.



4 > Many rap vocals - especially those recorded on inexpensive mics - will sound a little nasal and sharp, as ours does here. This is fairly easy to tame: a gentle cut at around 1-3kHz will remove some of the harshness from the sound. It's easy to overdo this, so be careful how much you cut - you don't want to lose the definition of your verse.



5 > We've defined the vocals nicely, but we still need that upper shine to cut through the mix. You can get this by applying a boost at around 6kHz. Weirdly, this will give a lot of rap vocals some additional body - just keep those slopes gentle. If you've got EQ bands to spare, you could probably boost a little in the 16-18kHz range, too, to add crispness.



6 > These EQ settings can comfortably be applied to the verses, but if you're using double-ups under your vocals you'll want to roll off the lower frequencies a little more - up to 130Hz won't hurt, and it'll make space at the bottom without seriously affecting that saturation you want. An additional cut at 1-3kHz for the double-ups wouldn't do any harm either. (Audio on the DVD: **Verse_EQ.wav**)



7 > Most rap vocals will more than likely sit in the 2-5kHz range, which will also be populated by the other elements of your track. Although every track will have different instruments and samples that need their own room in the mix, some gentle cuts at those frequencies will help the vocals sit alongside the music nicely. (Audio: **Verse_EQ_Over_Beat.wav**)

POWER TIP

> Ill-mation

If the MC's verse starts before the beat kicks in - over the intro, for example - you can have some real fun automating EQ parameters. Try raising the high-pass filter a little bit to create a thin, brittle vocal effect, and in the last bar before the bass drops, bring it back to its original value. This will create a fantastic sense of climax and make the rest of the verse sound even more full and punchy in comparison. You could experiment with automated changes to the EQ on your hook as well.

> Step by step Parallel power



1 > With hip-hop, it's tempting to over-compress the vocals, but this will wreck the dynamics of your MC's performance. One way to get around this is to use parallel compression. If you sent your verses to a group channel while layering them, you're set. If not, do that now, as we'll be applying compression to that channel. (Audio on the DVD: **Verse_Without_Compression.wav**)

2 > For your verses, make sure the **Pre-fader** switches on your sends are active, and that the send levels are all the way up. You can adjust this level later if things are too loud, but for the moment you're going to want to keep things as heavy as possible to give you a better idea of the effect you're creating later on.

3 > On the group channel, insert a compressor (we're using the VST Dynamics suite here). What we're going to do is set some pretty extreme levels, then gradually blend the compressed signal back in with the original until we get a nice, fat, punchy-sounding rap.

POWER TIP

>EQ out character

Although it's not strictly necessary, a little clever EQ can help bring out the best characteristics of your parallel compression. There are no rules here, but it's probably a good idea to roll off some of the low end below 30Hz or so with a high-pass filter. Or if your verse, like ours, comes out a bit too sharp and nasal-sounding in the high end, drop it very slightly there (a few dB around 3-3.5kHz) before applying compression.



4 > Set the compression **Threshold** relatively low - what we're aiming for here is a signal that gets compressed almost immediately. It depends on how loud your MC's verse actually is to begin with, but anything under **-20dB** will work. The same goes for the **Ratio** - around **6:1** should do nicely.



5 > Once that's done, let's deal with the **Attack** and **Release**. We want the compression to kick in right away (no soft knee here), so set them both very fast.



6 > Now push your **Makeup gain** up as high as it'll go without distorting completely. You're aiming for an ultra-fast, massively compressed signal. Don't worry about overdoing things, as we're about to get to the clever bit - a technique that will increase the perceived loudness of your verses, meaning you can lower their volume in the mix and leave yourself some headroom to play with later on.



7 > Lower your group channel fader completely. With the verse playing, slowly raise the fader to blend the compressed signal with the dry signal. How much you blend is entirely up to you, but you'll be able to hear when it sounds good: the dynamics of the MC will be enhanced and the verse will sound thick and punchy. (Audio: **Verse_Parallel_Compression.wav**)

POWER TIP

>Overdrive!

If you want to get really into it, and you have the CPU to spare, you can run parallel compression with more than one compressor. Try blending the signals from three or four compressors under the verse. You'll get some unexpected (not to mention loud) results, but with a little careful mixing, you can tame them to create tonal variations that wouldn't be out of place in a Drake or Kid Cudi track.

> Step by step De to the ess



1 > De-essing will help round off the high end of your vocals by smoothing any high frequency sibilance, thus removing the 'ess'es. Not every MC will need de-essing, so use this technique at your discretion. Here, we're using the freely downloadable Spitfish plug-in (www.digitalfishphones.com) as an insert. (Audio on the DVD: **Verse_Segment_No_De-Ess.wav**)



2 > Click the **Listen** button on Spitfish and gradually turn up the **Sense** knob until any sibilance ('ess' sounds) lights up the meter. The higher you raise this, the more sensitive the de-esser becomes. Think of it as like putting a super-low compression threshold on your vocal track. (Audio: **De_Esser_Active.wav**)



3 > To control the exact amount of de-essing, use the **Depth** knob. You'll probably only need to dial in a small amount to get the effect you need. If, like Spitfish, your de-esser has a **Soft** button, you can switch this on to ease up on the time it takes the de-esser to kick in (similar to a slow attack setting on a compressor), enabling you to turn the Depth up further. (Audio: **Verse_Segment_De-Essed.wav**)

Microphone fiend

The saying goes that hip-hop is the genre with the lowest entry fee. To be an MC, you don't need to invest in instruments or amps – all you need is your mouth. But when it comes to turning those bedroom raps and the freestyles outside the party into actual songs, you're going to need some equipment. And that means picking a microphone.

What you're looking for in your vocal setup is the best possible microphone for capturing the nuances of an MC's performance. This means choosing between the two main types generally available: condenser and dynamic. Without getting too technical, dynamic mics are incredibly rugged and able to withstand high volumes – perfect for the stage, or a studio with a bunch of instruments in it.

Of course, hip-hop being what it is, the music is more than likely going to be coming from your computer, so you'll be wanting a slightly less hectic microphone that can really do justice to your MC. And that means a condenser – if at all possible, one with a large diaphragm, which is always a good choice for studio vocals.

Taking the mic

There are quite a few inexpensive microphones available that can yield excellent results. Try the Samson C01 (which all the audio files in this tutorial were recorded on), the Audio Technica AT2020, or the Superlux CMH8B. Some models come with USB connectivity, so you can plug them straight into your computer, but for the most part, condenser mics require phantom power (supplied by your audio interface or



Three phat mics: the Superlux CMH8B (1), Samson C01 (2) and Audio Technica AT2020 (3) are all great condenser microphones that should help you capture your MC at his or her best

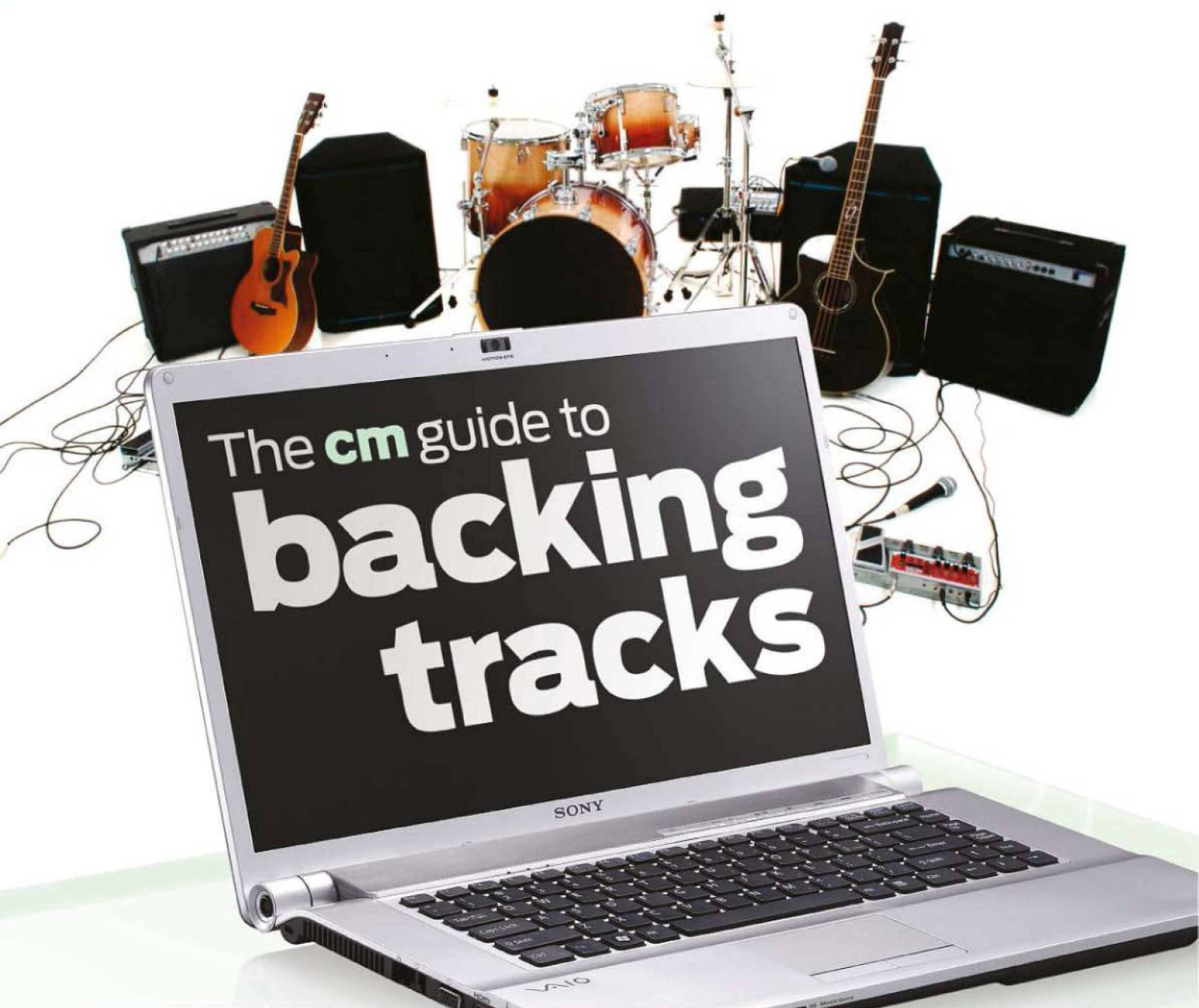
mixer). It goes without saying that any mic will need a pop-shield in front of it.

Now that your mic is set up, you need to get the best out of your MC. There are two main problems with rappers in the studio. Hip-hop is very rhythmic, and highly dependent on the MC's flow, which means that many rappers will spit their verses while moving around, bouncing their heads back and forth and moving their hands to keep time. This behaviour might look cool, but it'll send the volume of your vocal take all over the place. Tell the MC to stay still!

The other problem is the opposite: the MC being too close to the mic. In the movie *Hustle & Flow*, Terence Howard has problems recording his raps because he wants to stick his mouth right next to the mic. That might work on stage (where the aforementioned rugged dynamic mics can take such treatment) but in the studio, it'll just result in horrendous clipping damaging your recordings.

The pop-shield can help remedy this by creating a physical barrier, but it'll still help to make sure the mic is a good 8-12 inches from the MC's mouth. As suggested above, make sure he doesn't move around too much, and if possible, position the mic slightly above his mouth, so that he has to tilt his head upwards to hit it (this opens the vocal chords, making for a better performance).

The more you ensure that your MC can give his best performance before the audio signal even hits your DAW, the less likely you are to need the tips in this guide! cm



Get Milli Vanilli out of your head and let us show you everything you need to know to create a compelling live show accompaniment

> **Using a backing track means playing real instruments alongside pre-recorded parts during a live show. Whether this is done out of necessity to cover a missing band member, or to enhance your sound by adding an extra layer or two, backing tracks can be an invaluable performance tool.**

Historically, though, backing tracks have drawn the criticism that using them is somehow 'cheating' or lacking in integrity. High-profile scandals in the 80s saw several unscrupulous pop acts employ backing tracks to take care of lead vocals while they lip-synced along and passed the singing off as live. Even more 'authentic' acts have also received flak for relying too heavily on pre-recorded music, and this criticism may have often been valid.

It's unfair, however, for the actions of a few to

tarnish the reputation of all backing track users - after all, whether their use makes a live show any less 'musical' depends on *how* they're used.

A rock band is far more likely to get stick for pre-recorded drums than pre-recorded strings, for example. An electronic act, on the other hand, could probably play back an entire set-full of drums without any raised eyebrows whatsoever. A considered approach, along with an understanding of what an audience wants from a live show in your chosen genre, will ensure that your backing track improves, rather than detracts from, your performance.

In fact, used creatively, backing tracks can enhance your shows not only sonically but visually, too. Is watching you hold that slow, evolving chord for the entire song really all that interesting? Having the backing track cover

droning pads or repetitive riffs can free you up to play more flamboyant parts that are likely to be more entertaining to the audience.

You can even treat the backing track as a separate instrument to be 'played' in its own right, by manipulating and controlling it in real time using effects and MIDI controllers. Such tactile interaction with your pre-recorded parts will make your use of them far more 'musical', and further ensure that you're not tarred with the karaoke brush. Whether you choose to employ this specific example or not, it offers a useful mantra for any backing track user: aim to make the audience feel that you're playing *with* the backing track - not *along* to it.

That's the theory, then. Now let's get into the specifics - starting with how to keep in time with the bloody thing in the first place...

How to make a good click track

If you're performing live with a backing track, you're going to need some sort of rhythmic cue to keep you in time as you play. Of course, your backing track may feature several rhythm parts, such as repetitive riffs or drum loops, which you could theoretically play along to; but it's unlikely that these will continue throughout your entire track without let-up. Furthermore, if these rhythm parts get lost in the monitor mix, your timing will drift.

Enter the click track, containing a short sound on every beat, which is unheard by the audience but fed to you and your co-performers through headphones, enabling you to keep perfectly synced.

Sounds simple, right? Well, while programming a click track can be as straightforward as whacking the volume of your DAW's built-in click to +12dB and playing along, a bit more consideration is often needed. A criticism often levelled at live click tracks (and backing tracks in general) is they can make the music sound 'rigid' – a click doesn't respond sympathetically to the 'vibe' of the music on the night like a human player does – so that's something we need to tackle when creating it. This may involve adding slight tempo ramps of one or two BPM going into the upbeat chorus, accenting certain clicks to fit with the groove of each section, or

"This may involve adding slight tempo ramps of one or two BPM going into the upbeat chorus"

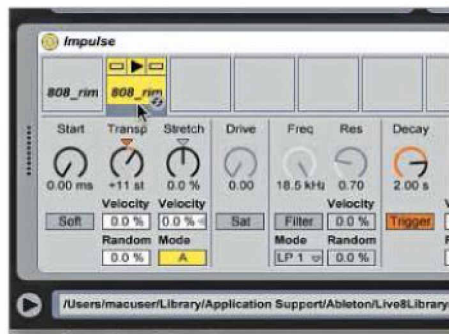
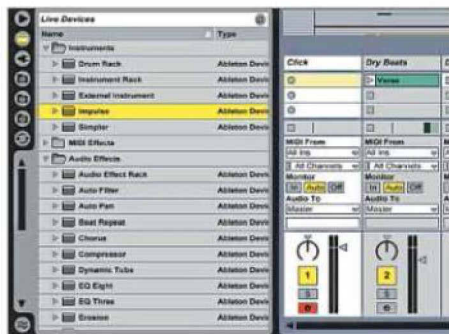
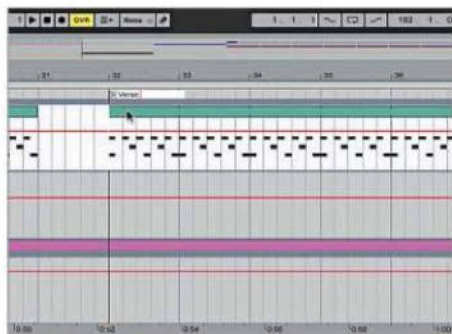
choosing a more musical sound for the click than your DAW's default computerised beep. Any changes you can make – however subtle – will go a very long way towards making your performances less rigid and much more musical.

Of course, if you're playing techno, then the 'feel' of the click might not be at the top of your list

of priorities. All we're saying is that you shouldn't overlook how much the click can affect a performance. For example, we once witnessed pro producer John Parrish spend an entire one and a half days of a four-day recording session just perfecting a click track!

For brevity's sake, though, we'll pack everything you need to know into a six-step walkthrough...

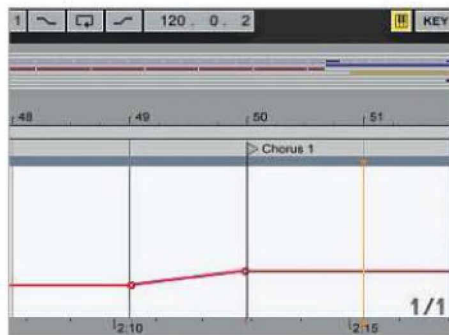
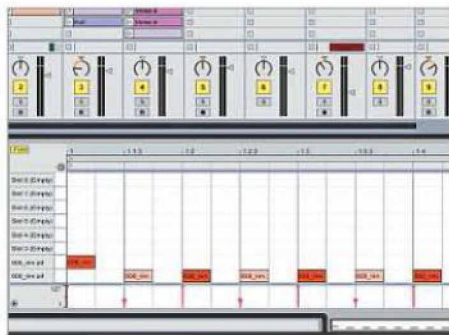
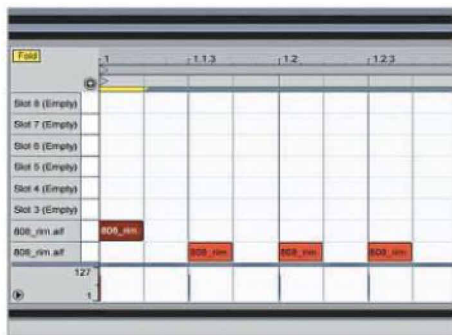
> Step by step Making a click track



1 > A bit of housekeeping to start with... First, load up the session you want to add a click to – note that it's best added before any audio parts are tracked, as we want the tempo to be flexible at this stage. Go through the song and add section markers, so that you know where you are.

2 > We're using Ableton Live here, but rather than using Live's built-in click, we're going to program our own in MIDI and run it through a drum sampler for greater flexibility. We load an instance of Live's Impulse device to a new track.

3 > Next we choose a sound for our click – something sharp and definite, but nothing too harsh. We'll actually need two sounds: one for the first beat of each bar, and one for all the other clicks. The former should be higher in pitch and accented (ie, more intrusive) compared to the others.



4 > Next, we program our click parts, adding an accented click on the first beat of each bar and a normal click on every other quarter-note (one per beat) or eighth-note (two per beat) – which option you go for will depend largely on the tempo, time signature and even the feel of each individual section, so play along to your basic click before deciding.

5 > Set the velocity of each of your clicks to give the click track some groove. You may, for example, want to make every other eighth-note quieter, to give a 'ONE-and-TWO-and-THREE-and-FOUR-and' bounce to your 4/4 sections. Again, the only way to properly decide what's best is to play along with it.

6 > Finally, add tempo ramps where (and if) needed. Automate your session's tempo to have a slight lift (of only a couple of BPM) at points that you think the song reaches an emotional high, and decrease the tempo where things return to normal. And we're done – a click track with 'feel'!

Preparing your session and setting up for a live performance

Once you've programmed the click and recorded all the parts you want in your backing track, the next stage is to prepare your session for live use. In this section, we'll get your backing track sent from your computer to the front-of-house and your click into your headphones. The process of separating the two (so that the click remains inaudible to the audience) involves both your software and hardware.

The way you set up your session and hardware will mostly depend on what audio interface you have. Let's group interfaces into two camps: simple 2-output (single stereo) interfaces such as Apogee's Duet or your computer's built-in

output, and multichannel interfaces that enable you to send different audio tracks to different sets of outputs and control their volumes independently.

If you're in the basic 2-out interface camp, you'll need to separate the click and backing track by panning them hard left and hard right. This way, we're using the single stereo output as

two independent mono channels.

For those in the second camp, multichannel interfaces give a greater degree of flexibility. For example, with a 10-out interface, you can send your click to outputs 1-2, pad sounds to 3-4, bass to 5-6, beats to 7-8 and synth to 9-10, giving the sound engineer control over the mix by having each element on

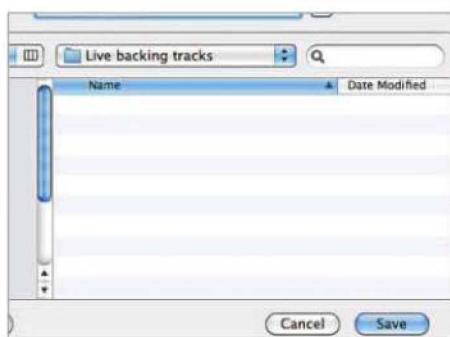
different channels.

Before you get too channel-happy with your outputs, though, consider how many inputs the front-of-house desk has – an extra eight (or more) channels may be too many if the drum kit, guitars and so on are miked up, too. Sending groups of similar instruments to two or three outputs is a workable compromise.

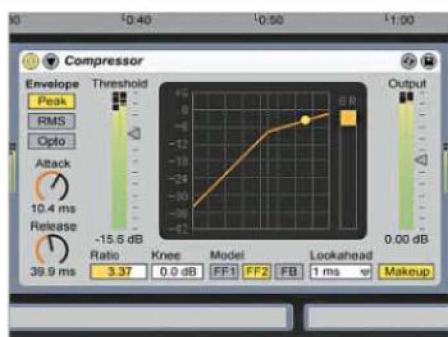
Nevertheless, whatever your exact setup is, providing a spec sheet that clearly explains what's coming out of each channel is essential. Get it to the sound engineer well in advance of the gig, too, in order to avoid a last-minute not-enough-DI-boxes panic.

"Providing a spec sheet that clearly explains what's coming out of each channel is essential"

> Step by step Getting ready for the gig



- 1 > Start by saving your track as a new session, because we're going to be completely changing it and you may want to revert back to the original later. You'll be using this actual session live, so name it clearly and put it in a new folder that will house all of your live tracks.



- 2 > Add compression and/or level automation to any parts that are too jumpy. You'll need a more even sound than you might when mixing a recording, as the sound engineer won't know when parts should be dropping in and out and so will want the levels kept on a tight leash.

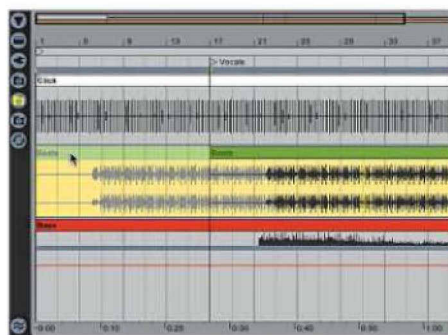


- 3 > Bounce as many of your MIDI/virtual instrument tracks to audio as you can. You're doing this to save CPU, which will make your session more stable and quicker to load. Solo each track in turn, get your levels coming up at as close to 0dB as is safe, and export.

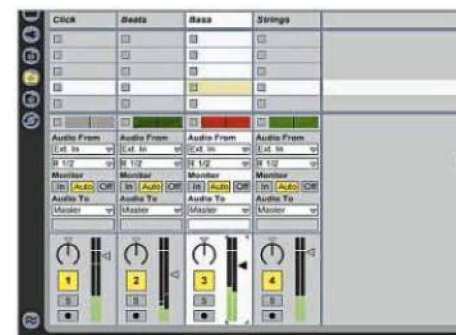
POWER TIP

>Swift song change-overs

Keeping song change-over time to a minimum is crucial to a slick, professional performance – but having to close your current session, load the next one and start the track going can be a fiddly, time-consuming affair. If you're using Logic, be sure to check out Fluque's OnStage software at www.fluque.com, which, once set up, will do the session swapping for you with just a press of a button. Not using Logic? Another trick is to have your entire set programmed as one big session.

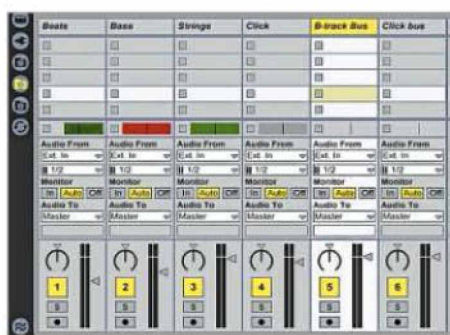


- 4 > With your audio exported, re-import each part onto a new audio track and delete the old ones. If you exported everything from the very start of the track, you should have no problems getting all the parts to line up as before.

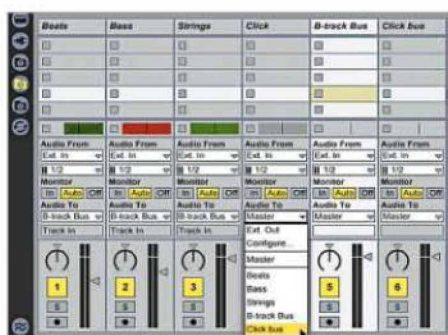


- 5 > Now go through and mix the backing track. Use volume to mix only – avoid panning (if you only have a 2-out audio interface, then your mix will end up mono anyway, as discussed earlier). Again, keep the levels as even and predictable for the sound engineer as you can.

> Step by step Getting ready for the gig (continued)



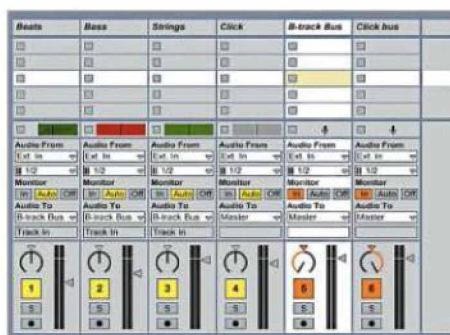
6 > Now let's start routing by creating some busses. If you have a 2-out interface, you'll need two: one for the click and one for everything else. If you have a multi-out interface, then create a bus for each mix group you're going to offer the sound engineer, plus one for the click.



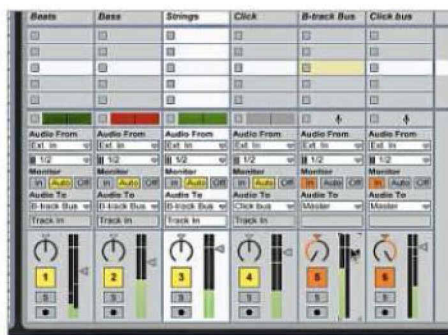
7 > Route the audio outputs of your tracks to your busses - simple if you have a 2-out system, but multichannelers will need to decide which instruments will be grouped together on which bus (and therefore output). Consider what will give the engineer the most flexibility - for example, they'll find your track easier to mix if key instruments, such as beats and bass, are in separate groups.



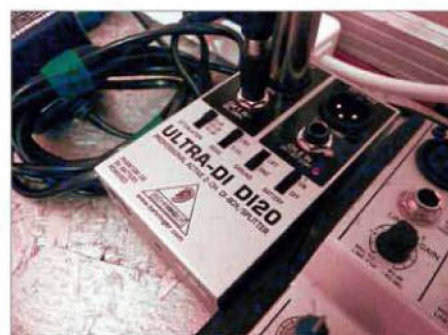
8 > With the first lot of routing done, add a compressor and a brickwall limiter to each bus. This is the backing track equivalent of mastering a recording - but, like mastering, if you have to compress too drastically, then your track probably isn't mixed right to start with. We're only using 'mastering' techniques here to gently massage out any wrinkles in the mix - not to fix holes in it.



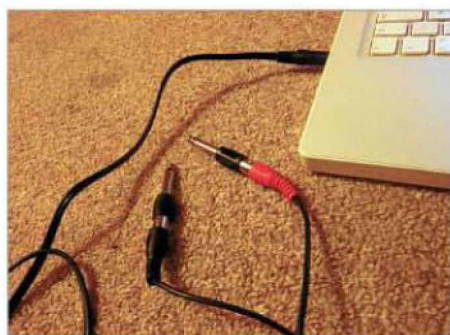
9 > The last software routing step is to assign each of your busses to a different output on your interface. If you're using a 2-out interface, this involves 'assigning' your backing track to channel 1 by panning it hard left, and sending your click to channel 2 by panning it hard right. If you're using multiple outputs, then you'll assign your click to outputs 1-2, your first bus to 3-4, the next bus to 5-6 and so on.



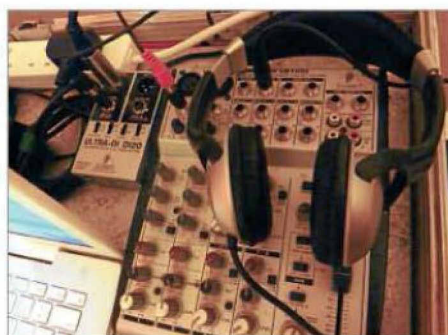
10 > We now have completely independent busses for the backing track and click being sent to separate outputs. We can change the volume of each without affecting the other(s). With software routing finished, we can move on to the hardware and how to get the signal from your audio interface to the front of house and your headphones.



11 > However you've set up your routing, your backing track signal will need to end up at one or more DI boxes to carry it to the front of house. You'll need one DI channel for each output, so that'll be just one mono DI box if you're running a mono backing track described in step 9, or one 2-channel (or two mono) DI box(es) for each stereo out if you're using a multichannel setup.



12 > Connecting your computer should be as simple as running a cable from your interface's backing track output(s) to the DI(s). If you're only using your computer's built-in minijack output, you'll have to physically split the stereo output with a minijack-to-twin-mono-jack cable. Because your busses are hard panned, one mono jack will be carrying your click and the other your backing track - easy.



13 > With your signal routed to the front of house, all that remains is to get the click to your headphones. The best way is to patch your click output into a small mixer (the E30 Behringer UB502 would do the trick), then take a headphone output from that. This way, you can adjust the volume of the click as you play.

POWER TIP

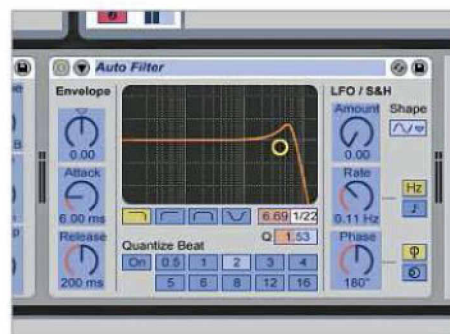
>System backup

If your laptop goes down during soundcheck or mid-set, an MP3 player loaded with your backing tracks can be a potentially gig-saving backup. Bounce an uncompressed audio file of each of your sessions using the panning method described in step 9, then separate the click and backing track out of the headphone output as in step 12. If you're using an iPod though, make sure the option to automatically play the next song is turned off!

Controlling real-time effects on a live backing track

> Step by step

Performing a filter sweep



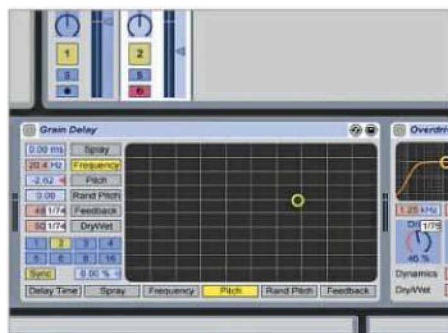
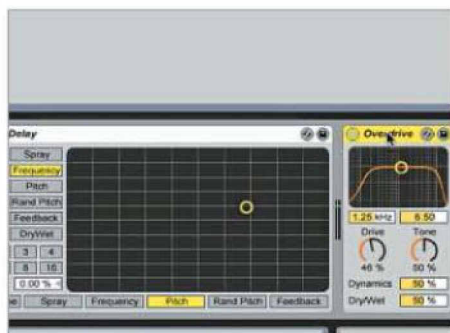
1 > We're going to apply a low-pass filter sweep using a rotary control on a MIDI controller. Make sure your MIDI controller is configured properly. In Live, that means heading to the **MIDI Sync** tab in **Live's Preferences** and switching **Track** and **Remote** for your controller to **On**.

2 > We're using Live's Auto Filter here, which is loaded onto an audio track. Tweak the settings (**Q**, etc) until you have the filter behaving as you wish. Remember that your filter sweeps will be more apparent with higher resonance settings.

3 > To assign the filter cutoff to a rotary control in Live, click the **MIDI** button at the top right of the screen followed by Auto Filter's cutoff **Frequency**, then twiddle the desired knob on your MIDI device. Click the **MIDI** button again and you're ready to tweak in real time.

> Step by step

Assigning one control to multiple parameters



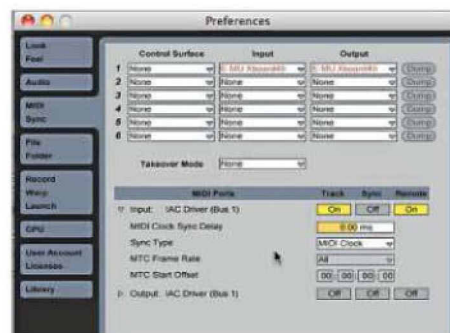
1 > Sometimes you might want to assign one rotary controller to multiple parameters. First let's create our effect - drag Live 8's Overdrive and Grain Delay devices onto the track or backing track bus you want to work with and get a sound you're happy with.

2 > Assigning a rotary to more than one parameter is done by hitting the **MIDI** button, clicking the first parameter, moving the knob, clicking the second parameter, moving the knob, and so on. Here, we've selected Overdrive's **Drive** and Grain Delay's **Dry/Wet** and **Feedback**.

3 > To have one knob change different parameters by different amounts, click the **MIDI** button and adjust the **Min** and **Max** values for each parameter under MIDI Mappings on the left.

> Step by step

Using a Nintendo Wii controller live



1 > For more live control shenanigans, pick up Wiinstrument at sourceforge.net/projects/wiinstrument to use a Nintendo Wiimote to control MIDI CCs via its accelerometer. For brevity, we're only covering the Mac method, but Windows info can be found at screenfashion.org.

2 > Install Wiinstrument, load it up and engage your computer's Bluetooth. Hold buttons **1 + 2** on your Wiimote to pair it up. On the Configuration screen, assign the pitch and roll of the Wiimote to CC values. Note that you must use Wiimote's direction buttons to change any settings.

3 > To get the data routed to Live, we use OS X's built-in IAC MIDI Bus 1, which comes up as an option under **MIDI Device** in Wiinstrument - we can enable this in Live's **Preferences** as before by engaging **Track** and **Remote**. To finish up, use the MIDI map method described above. **cm**

Taken for a ride

Exploring the modular PC tracker Psyche and getting to grips with its powerful built-in effects



> **Psyche** (psyche.pastnote.org) is a free modular music creation tool for Windows that enables you to build up songs by linking plug-ins (or 'machines', as it calls them) together. As well as the ability to use chains of VST instruments and effects, Psyche comes with its own impressive array of plug-ins, so raw song files can be easily shared without the worry of other users not having the right third-party plug-ins available.

In the tutorial, we'll create a simple, bouncing melody line using one of Psyche's instruments

and two of its effects units. But first, let's go over some fundamentals. Psyche is divided between two views: Machine (for connecting sound units together) and Pattern (where your song is composed). These views can be selected by either clicking the icons at the top of the screen, or by pressing **F2** and **F3** respectively.

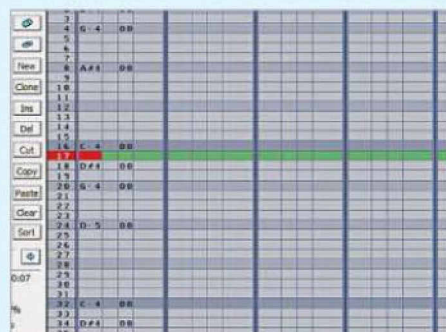
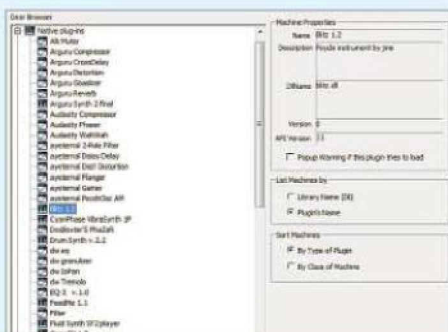
The various machines are distinguished by colour – blue ones are Generators and green ones are Effects. A basic structure would be to connect a Generator to an Effect, then route this to the Master. But, in reality, you can connect

multiple machines to one another, the only limitation being the inability to connect two Generators together. Before we begin, head to **Configuration»Settings (Alt+S)** to set up your audio output. You can set up your MIDI keyboard here as well. If you don't have one, you can simply audition and program notes with your QWERTY keyboard, using keypad buttons / and * to change octaves.

One final tip: when editing Psyche's machines, hold down **Ctrl** for finer knob adjustments, and **Shift** for super-fine control.

>Step by step

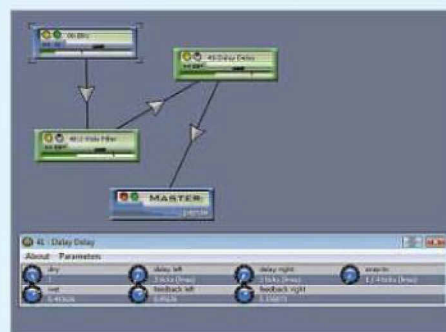
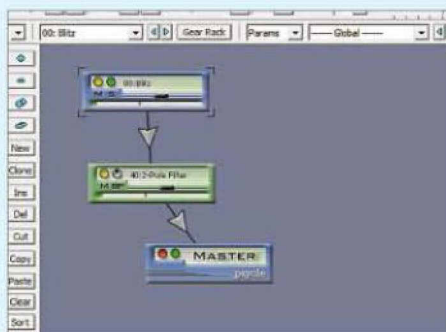
Using Psyche's built-in instruments and effects



1 > Select the **Machine** view and then double-click the blank area next to the Master machine. Unroll **Native Plug-ins** and double-click **Blitz 1.2**. Hold **Shift** and drag a line from the Blitz machine to the Master to connect the two. (Continue or load [CM_trackers_tutorial_19a](#) from the DVD.)

2 > Let's choose a better sound for our melody. Double-click the **Blitz** machine, select **Parameters»Open Preset dialog (Ctrl+P)** and choose the **Arp2FM4** preset. If you tick the preview box, you can audition the presets just by selecting them and playing notes on your MIDI keyboard. Hit **Use** to exit. (Continue or load [CM_trackers_tutorial_19b](#).)

3 > Switch to the **Pattern** view. Press **Space** to go into Edit Mode and enter a simple melody into the first track. Step down in the sequence with the down arrow key, or choose to record live by tapping the right **Ctrl** key to start the sequence playing. When you've finished, press **Play** (or tap the right **Ctrl** key) to hear your melody. (Continue or load [CM_trackers_tutorial_19c](#).)



4 > Let's make our notes more staccato by editing the sounds. Switch back to the **Machine** view and double-click the **Blitz** machine. Under **Amplifier Envelope**, lower the **Decay**, **Sustain** and **Decay 2** values to suit. Close the box when you're done. (Continue or load [CM_trackers_tutorial_19d](#).)

5 > It's time to delete our previous connection to the Master. Do this by right-clicking the arrowhead between the two boxes and choosing **Delete Connection**. Double-click the blank area and bring in an **ayeternal 2-Pole Filter**. Connect the Blitz to the Filter and the Filter to the Master. (Continue or load [CM_trackers_tutorial_19e](#).)

6 > Double-click the **2-Pole Filter**, and raise the **Resonance** to nearly full and the **Cutoff** to 3/4. Now set the **Mod Frequency** to roughly **64 lines** and the **Mod Amplitude** to **0.26**. Insert an **ayeternal Delay** between the Filter and the Master. Finally, adjust the Left and Right **Delays** to **3 ticks**, **Dry** to **1** and **Wet** to **0.4 cm**.

Living in harmony

We break music down to its component parts with a look at the harmonic series and the laws that govern it



> From time to time in these pages, we like to take things right back to first principles, forgetting the ramifications of music theory and practice as built up over the centuries, to look at the nature of sound itself. From here, we can discern if there are any fundamental truths about music and apply them to our own knowledge and way of working.

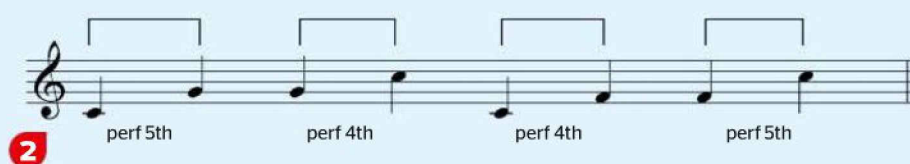
Have a listen to our brief sound clip, **EasyGuide.wav**, on the DVD. It contains three contrasting yet eerily similar recordings. The first sounds you'll hear are open string harmonics played on a bass guitar (low A tuned down to G). Then you'll hear a low G on a French horn (with the set of notes you get when you progressively tighten your lips and blow harder but don't change the fingering). Finally, this will be followed by a synth low G with a band-pass filter swept gradually up through its sound spectrum. Variations in timbre and intensity apart, you'll hear the same set of notes. So how can this be explained?

The harmonic series

As was discovered by the ancient Greeks, most musical tones can be analysed as a series of overlaid vibrations, and this series remains the same for any instrument (with the exception of clarinets and square wave-based synth patches). It's as if, when you hear any single musical tone, you're actually hearing a complex stack of sine waves, but the notes are so consonant with each other that you only ever hear the combined vibration as a single sound. You might almost say that any one note contains many different notes.



The harmonic series of G. The numbers are multiples of the fundamental frequency, with the bracketed notes differing from modern tuning



How fifths become fourths and fourths become fifths when inverted

The frequencies of these sine waves that make up the harmonic series are very simply related: the frequency of the lowest perceived note, the fundamental, is doubled in the next note up, tripled in the one after that and so on. Allowing for slight variations in tuning, the notes make up a pretty recognisable pattern when put into notation. **Fig 1** shows a low, low G fundamental (don't bother to count the ledger lines!) then G up the octave (frequency x2), then D (frequency x3), then another G (frequency x4), then B (x5), D (x6), a slightly out of tune F (x7) and back to G (x8). A G7 chord! The higher notes get fainter (and a lot harder to play on the horn!), but they approximate the beginnings of a major

scale, though the fourth step is seriously out of tune (sharp).

The laws of natural harmony

Perhaps because we're exposed to this series of notes from a young age, it's ingrained within us, providing a framework on which we can base notions of 'natural' (ie, convention-free) consonance and dissonance.

The lower the notes come in the series, or rather the lower the intervals between them, the more consonant (as opposed to dissonant) they would seem, related directly to the ratios between the frequencies of the two notes. In other words, the simpler the relationship between the two frequencies, the more consonant the notes are perceived to be. This would give a 'natural' hierarchy of intervals from consonant to dissonant, based on acoustic principles rather than some arbitrary bit of music theory.

Here's the plan

We'll start next month with the most basic intervals of octave and perfect fifth, which have the simplest ratios of frequencies. We'll then proceed up the harmonic series issue by issue looking at more complex, and therefore more dissonant, intervals.

So, next time it's octaves, fifths and their inversions, fourths. When the lower note of any interval is transposed up an octave (so that it's above the 'upper' note), or, indeed, when the upper note is transposed down an octave, the interval is said to be inverted and its characteristics may change. In the first place, and in preparation for next issue, we can see that a fifth inverted becomes a fourth and vice versa. Out of convention, octaves, fifths and fourths are said to be 'perfect' intervals, perhaps reflecting on their ultra consonance. **cm**



The C major scale and the intervals (measured up from the C) it contains

Academic names of intervals

For the sake of clarification, we're going to use the universally accepted conventions for naming intervals (the difference in pitch between two notes).

When the frequency of one note is precisely double that of another, we say it's an octave higher. This is the effect you get when a crowd sings a song; the men sing the same notes as the women (and children), but an octave lower. Although different

frequencies are used, we normally hear this as singing 'in unison'.

The word octave, of course, implies an eight-fold-ness and most scales used in Western music, including the familiar major scale, have seven different notes before starting again on the 'same' note at the higher octave. The major scale is the basis of conventional interval naming, so that's what we're using here.

Tabula rasa and shoshin



Our sonic sensai comes over all Zen and shares his thoughts on creating music from instinct by entering a state of 'beginner's mind'

rachMiel



rachMiel has spent the better part of a decade studying composition in America and Germany. A recovering atonalist,

his musical influences range from Frank Zappa, Karlheinz Stockhausen and North Indian classical drumming to 60s pop, horror movie soundtracks, avant electronica and, above all, silence.

> **Tabula rasa is a Latin term meaning 'blank slate'. In philosophy, it refers to the notion that we enter this world without pre-existing internal content. Our content grows from personal experience, layer by layer, over the course of our lifetimes. Older layers fade but never disappear altogether. Thus the pristine tabula rasa state only exists at the moment of conception. Once the slate has been written upon, it can never regain its original perfect blankness. You can't will yourself to forget all that you know. Indeed, such an act would be disastrous. You can, however, *clean your slate* and recapture a good deal of your original tabula rasa innocence.**

I've always been drawn towards tabula rasa-hood. My typical trajectory is to pursue an interest with passion until I reach saturation point, at which stage I give it up, suddenly, completely. Often I'll come back to the pursuit months or even years later, with a freshness and un-knowingness arising from my separation from it. In effect, the time apart cleans my slate and moves me towards a state of tabula rasa.

Come again?

Hold on a minute! Success in life is all about accumulation, isn't it? You establish a foundation and build on this, floor after floor, creating the ornate castle that is your life. Yes, but what I'm talking about is razing your castle - or rather, one of the main chambers within it - to the ground. So, what good can come out of that, you ask? Lots! Deep, life-altering good - freshness, innocence, freedom, profound

self-transformation and the excitement and incredible energy of falling in love for the first time. Imagine feeling about music the way you did when you were first drawn to it as a child, how it filled you chock full of boundless, unspoiled enthusiasm and wonder.

Beginner's mind

In Zen Buddhism, there's a concept called shoshin that's very similar to the notion of tabula rasa. Shoshin or 'beginner's mind' is a state of profound openness and lack of preconception, a beginner's eager innocence. Fully realised human beings are said to live in persistent shoshin, where every moment is utterly new and fresh and unspoiled by expectation. It takes years of formal meditation to achieve such persistence. But it takes no time at all - just a shift in attitude - to get a good strong taste of shoshin.

Just visualise the things that most strongly define you - your personal history, likes, dislikes, accomplishments, failures. And then, one by one, drop them, let them all go. Once you're in beginner's mind, start to make music. Don't predefine how you'll do this, just let it happen. Perhaps you'll pick up a guitar and start noodling. Perhaps you'll fire up one of your tried-and-true VST synths and experience it with beginner's ears, as if for the first time. Perhaps you'll compose soaring melodic passages within the theatre of your aural imagination, unhampered by the demands of generating real-world sound. Once you're in tabula rasa, trust your instincts, your gut. And should you begin to feel uncomfortable in such unfamiliar territory, relax - your trusty old musical self is sitting patiently in the background, fully intact, ready to be retrieved at a moment's notice.

"Once you're in beginner's mind, start to make music. Don't predefine how you'll do this, just let it happen"

Confession time

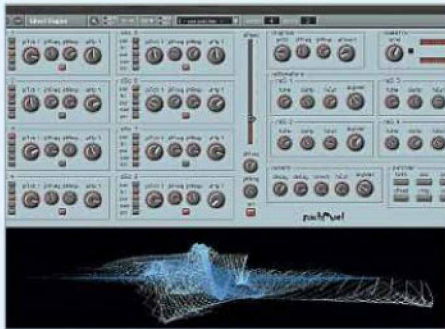
I rarely have trouble creating audio examples to demonstrate the ideas in my *Off the dial* articles, but this was a toughie! It's one thing to blithely speculate about letting go of your musical identity; it's quite another to actually do it. First, it's very difficult not to fall back, consciously or unconsciously, on what you know, your deeply ingrained conditioning. Secondly, even if you succeed at giving birth to (what feels like) a new you, the music you

make might end up sounding a heck of a lot like the old you, as evidenced by my audio examples on the next page.

And so, given that pure tabula rasa-hood is an unreachable ideal - except, perhaps, for Buddhist monks living in caves - and the music you create when trying to attain this unreachable state will probably sound quite similar to what you're doing now, the question arises: what's the point of all this

tabula rasa talk? Why bother attempting to wipe your slate clean if it's just an empty exercise? The answer: because it's not just an empty exercise. Even if you fail to become a pure tabula rasa, the sincere attempt to do so will change you, open you up, give you back a chunk of your unjaded musical innocence. You'll hear the world with new ears, and this newness will work its way into your songs. Trust me and give it a try.

>Step by step Creating music with a beginner's mind



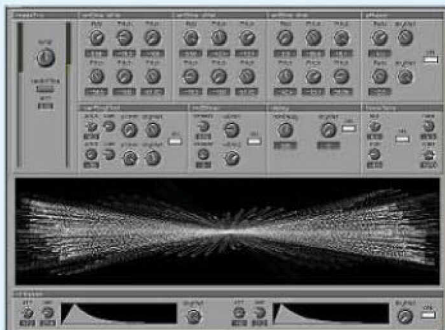
1 > To create the examples for this article, I revisited some Reaktor ensembles I hadn't made music with for a long time – years in most cases. I strove to experience each instrument with beginner's mind, as if I were using it for the first time. Here's a simple – shoshin-esquely innocent, I hope – evolving sequence I created with an old ensemble of mine called Ghost Engine: **Ghost.wav**.



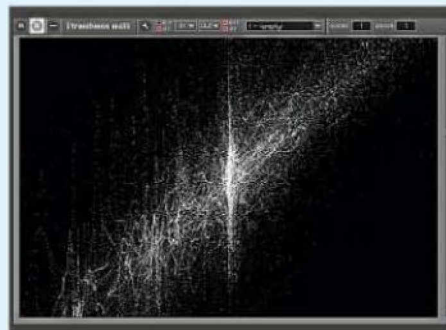
2 > Broken Organ was one of the first ensembles I ever built, close to ten years ago. Since then, I've refashioned it into other, more 'sophisticated' Reaktor instruments. But, for the purpose of going tabula rasa, I chose to resurrect this original version. I fumbled about, created a patch that caught my (beginner's) ear and improvised this rather lugubrious passage from it: **Broken.wav**.



3 > t'Wanger is a synth that uses physical modelling to create a broad range of exotic plucked string sounds. Like many of my ensembles, it relies heavily on randomisation, an approach to sound generation that invites an attitude of shoshin unknowingness. Here's a patch I created many years ago that I revisited with beginner's mind: **t'wanger.wav**.



4 > 50s Sci-Fi Box is a self-generating ensemble that uses ever-changing sine waves to create reverb-dripping theremin-like textures reminiscent of classic 50s science fiction movie soundtracks. I turned the Sci-Fi Box on, listened hard and long with preconception-free ears and captured this passage, which sounded somehow 'just right' to tabula rasa me: **Scifi.wav**.



5 > Early on in my Reaktor meanderings, I made a bunch of ensembles that use recursively self-modulating banks of sine oscillators to generate sound. The results – full of ring, amplitude and frequency modulation – were often delightfully surprising. My beginner's mind was drawn to the very lively and unpredictable sound flow sputtered forth by Trombonus: **Trombonus.wav**.



6 > Carbon ReMix is my loving modification of Carbon, the fabulously rich and expressive synth created several years back by the Reaktor-programming gods at Native Instruments. Carbon ReMix is particularly well suited for the shoshin approach, in that it uses guided randomisation to enable users to create highly abstract and one-of-a-kind patches. Here's what I came up with: **Carbon.wav**.

Experimentalists' corner: Burn your self down!

This issue's *Off the dial* was inspired by a real-life incident: the death of my hard disk. I'd backed up some, but not all, of its contents. Among the missing data: the uncompressed files from my last album and, worse, all the in-progress files from (what was to be) my next album. That's about two years of work gone, gone, gone.

At first I was, as you might imagine, a tad devastated. I felt I'd lost a significant chunk

of my self. Then my attitude started to change. Instead of feeling diminished by the loss, I began to feel enlarged. Like it or not, my slate had been wiped clean. I'd been dropped into a state of compositional tabula rasa. And I was duly cleansed. My primary feelings now are ones of freedom and potential. I'm in the process of re-inventing my musical self, and invention is always a huge thrill.

Brothers and sisters in radical self experimentation, I encourage you to follow suit. Burn your self down! Not, like me, by trashing your hard disks; that's way too melodramatic and, ultimately, unnecessary. Rather, just let it all go. Discard your personal musical history like you might a comfortable old faded shirt whose heyday has come and gone, then rise, phoenix-like, from your own ashes.

Changing direction

We've changed Scot's remit from pure synthesis to sound design in all its many forms – first up, vocal processing

> **Yes indeedy, changes are afoot here in my little corner of Computer Music. While you'll know me best in my role as a synthesist, synthesisers are only one facet of sound design. My interest in synths stems from how they fit into sound design as a whole. In fact, in that regard I differ from many pundits who see synthesis as a separate thing to say, sampling, effects processing or even recording itself.**

I treat anything and everything that makes or shapes a sound as simply another 'synthesiser

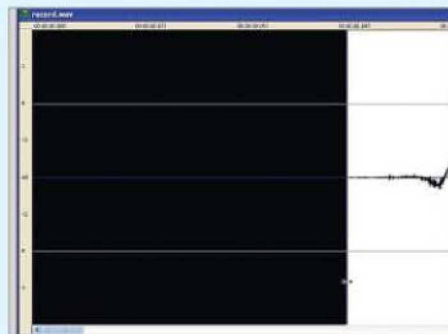
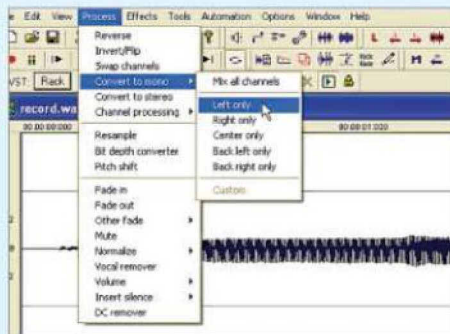
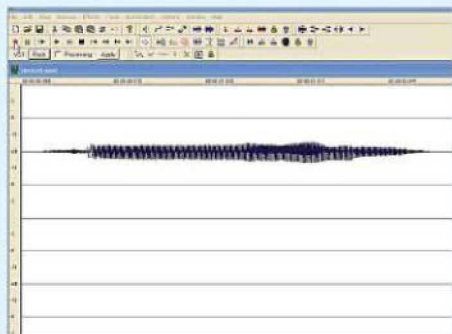
module' in my studio. A microphone can be a part of my synthesis process, as can a record player or tape machine – even a computer. When I bought my first computer, it was capable of little more than a bit of MIDI sequencing. As a reader of this magazine, you'll know that technology has moved on a bit since then! Now, computers are the studio, housing a wealth of synthesisers and sound design tools. Why be limited to plug-ins that say 'synthesiser' on the box? There are so many more tools available to the open-minded sound designer, and we'll be

exploring all that they have to offer in further instalments of *Sound Essentials*.

Needless to say, though, synthesisers will still be an integral part of the *Sound Essentials* series. So too will samplers, effects processors and, even, as you'll see in the tutorial below, the humble microphone. Our intention remains the same: to render exciting, inspiring sounds, and to help give you the knowledge and impetus to carve out your own sonic niche. And what better way to start achieving that than by making use of your own voice? **cm**

>Step by step

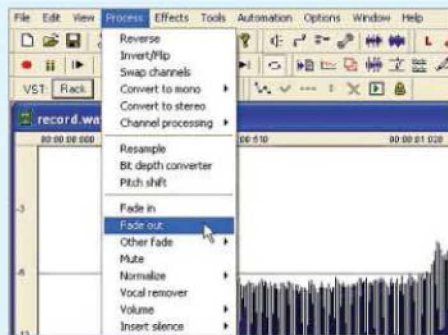
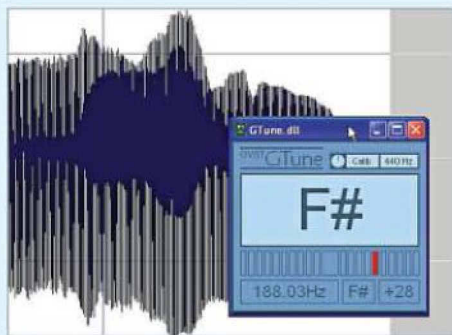
Create a pad of your voice



1 > Since the idea of our new *Sound Essentials* format is to go beyond synthesisers, we'll begin by calling upon that most familiar of sound sources, the human voice. We're going to turn it into a cool pad. Open your audio editor and record a monotone vocal snippet. It can be anything, really. I just 'sang' 'C' into the free Wavosaur (www.wavosaur.com).

2 > Don't worry if your recording isn't perfect. Mine isn't! I only tracked through one of my audio inputs, but Wavosaur defaults to a stereo recording, with the sound on the left channel. To convert this recording to a mono file, go to the **Process** menu and select **Convert To Mono**, choosing the option that enables only the left channel to be used.

3 > To increase my rather feeble signal level, I use the **Normalize** command to normalise the file to -1dB, leaving a little headroom for processing. Now to trim the sound. There's a lot of dead air before and after the voice, so zoom in close, select the empty space and delete it. It's particularly important that the start of the sound is nice and tight.



4 > OK, let's figure out the sample's pitch. You might not be working with a pitched sample, but if you tried to record a monotone vocal, there's a chance it'll be close to a recognisable note. You can use a tuner plug-in to see what note that might be. I'm using the quick and easy GTune from www.gvst.co.uk. It tells me that I'm singing a bit north of F#.

5 > If you're concerned about the pitch of your sample, you can use a pitch correction tool to knock it into shape. My favourite is Melodyne, but I don't have it installed on this computer, so I'm using another plug-in from GVST called GSnap, which is very like Auto-Tune. I restrict the pitch to F#, then apply the processing using Wavosaur's **Apply** command.

6 > We've just about got our raw sample ready for further treatment. I have a bit of an abrupt change at the end of the file, so I use Wavosaur's **Fade Out** command to smooth it out a little. I select a short bit at the end and fade it down gradually, which gives me a nicely tuned and trimmed sample. I save it to my hard drive, so I can use it again.

BUSTING JARGON

GRANULAR SYNTHESIS

A process by which a sound is broken down into very small particles, or 'grains', and played back at varying rates and pitches. Granular synthesis can be used for wild experimental sounds, as well as more practical processes such as time-stretching and pitch-shifting. Some samplers use granular methods to shift samples up and down the note range without affecting their lengths.

PRO TIPS

STRANGE VOCODINGS

Yeah, we've all heard a few too many vocoded phrases in recent years. But you can achieve some unusual effects by grabbing a snippet of crowd ambience or random noise off the idiot box and using it to modulate a choir or even some sampled orchestral passages.

FRAGMENTED FORMANTS

There's much to be gained from chopping vocal recordings into tiny segments. You could create interesting one-shot percussive sounds or loop the bits for use as raw waveforms in your sampler of choice. You could even whittle them down to single cycles and string 'em into a wavetable.

AND ON THAT NOTE...

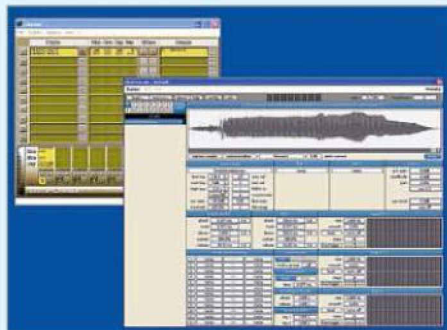
Vocal snippets make interesting elements in rhythmic wavesequences. You can roll them into SoundFonts and use them in Green Oak's freeware Crystal, for example, or import a longer phrase into a loop slicer, where each bit can be treated individually.

Scot Solida

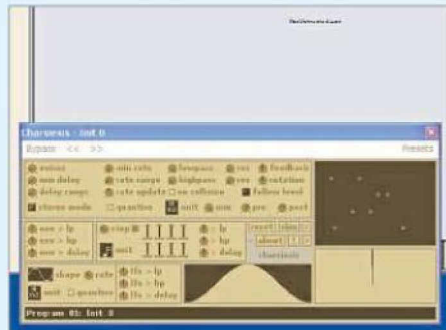


Scot bought his first synth over a quarter of a century ago. A synthesist, sound designer and audio engineer of international repute, he's provided factory presets for many of the music software industry's most

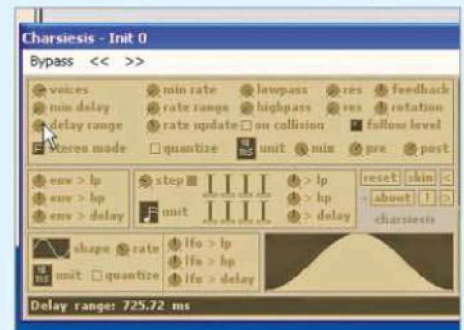
acclaimed synths, samplers and drum machines, not to mention the **cm Studio**. On rare occasions, he manages to find time to make records for Beta-lactam Ring Records under the name Christus and the Cosmonauts.



7 > 'Autosampling' tools are great time-savers that automatically sample combinations of hardware and software. Here, I've opened my sample in Vember Audio's free shortcircuit, which, in turn, I've loaded into Chainer. I need to set the root note and range of my sample, after which I can trigger it from the sampler.



8 > Granular processors are some of the most drastic effects available. They can transform a sound into something entirely new. Using Chainer, we can slot in a granular effect after our sampler. I'm using the utterly brilliant Charsiesis from Fuzzpilz. You can download a shareware copy from bicycle-for-slugs.org.



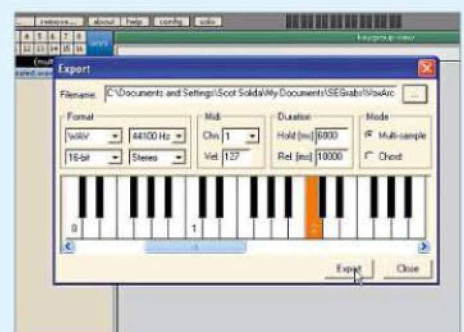
9 > The sound's already different to our original sample. Let's take it quite a bit further, though. Find the **Voices** knob at the upper-left of the Charsiesis plug-in and crank it up, then turn the **Delay Range** knob up to around two o'clock. Whoa, that sounds like a Hollywood sound effect! It's still a little too close to our original sound, though. Let's keep at it.



10 > Crank up the **Minimum Delay** knob, again to somewhere in the region of two o'clock. Next, give the **Feedback** knob a nudge. You've probably noticed that Charsiesis has a couple of filters onboard. Go to the highpass filter section and set both the **Highpass** and **Resonance** knobs to ten o'clock. While you're at it, boost the **Rotation** knob to one o'clock.



11 > That's terrific! Play a chord for an atmospheric choir sound. Very nice, and nothing like the original sample. Let's go back into shortcircuit and tweak the envelope. A longer attack and release would do nicely. In fact, I think a bit of lowpass filtering is in order, and I've set up **EG2** (Envelope Generator 2) as a modulation source for the filter's cutoff.



12 > When you've got a sound you like, use Chainer's **Export** function to export chords or multisamples of your instruments and effects. These samples can then be trimmed in your audio editor and loaded back into your sampler. Test your sound by right-clicking the keyboard. And that's it! You now have a pad sound made with nothing but your own voice!



Gareth Jones

The producer and engineer for the legendary likes of Depeche Mode and Erasure gives his take on how computers have changed the business of music making

> Gareth Jones' career has been remarkable, not least because within four years of working in recording studios he'd been involved in two seminal albums. The first of these was John Foxx's *Metamatic* in 1979, the original pure synth album by a UK solo artist. Then, in 1983, he engineered Depeche Mode's *Construction Time Again*, the album that brought the art of sampling to the masses. Since then, he's worked with dozens of bands and musicians, including most of the Mute Records roster (Nick Cave and Erasure among others), scored numerous gold and platinum albums and, more recently, worked with new indie darlings *Tiny Masters Of Today* and *Top 10 US album chart-hitters Grizzly Bear*.

After 30 years in the industry, Gareth has seen it all technology-wise. But he's quick to note that, for all its developments and his pioneering use of it, technology is just a glorified paintbrush – good music has always been, and will remain, about *ideas*.

Finding the path

Gareth's first job was at the BBC in the mid-70s, where he gained plenty of engineering experience. He realised, though, that it would be a slow route to his ultimate goal – combining his loves of music and technology and working in a recording studio. He picks up the story...

"I wrote a load of letters to studios – which is a pretty pointless way of doing it, really – but a guy called Mike Finesilver at Berwick Street Studios got back to me. He was a producer who owned a tiny but legendary eight-track studio called Pathway, and he was looking for someone to be a freelance engineer. He mentored me. He was a great help."

One of Gareth's earliest recordings was *The Prince, Madness'* debut single; but his first album proper was John Foxx's *Metamatic*.

"In my teens I'd discovered *Switched On Bach* by Walter Carlos, which was my first experience of synthesisers, so it wasn't a totally alien world," Gareth says. "I also didn't really have a history of working with drums, bass and guitars and was always interested in computers so, as a hi-tech vision, I was comfortable working on *Metamatic*. I was a very junior engineer and it was one of the first albums I recorded and mixed. But it was John's vision and he did all the programming and synth work. He was mentor number two and I learned so much from him."

The album was successful and Foxx used his recording advance to set up his own studio in Shoreditch, East London. Bearing the same name as his 1981 release, *The Garden* was hired by Depeche Mode to explore some fresh sounds on their third album *Construction Time Again*. Gareth was on hand to help with the new sampling technology that was about at the time.

"We just sampled everything and played melodies and beats with the samples," he recalls. "We did it as much as we could, and a lot of fun it was too. I had a portable Stellavox recorder – a high-quality ¼" reel-to-reel machine with mics – and we went out into the industrial wastelands of Shoreditch, sampled stuff and put it into a Synclavier for the record."

The resulting album featured massive hits like *Everything Counts*, and its success not only bought sampling technology to the fore but also started a relationship between the band and Gareth that's lasted, having worked on many

albums together over the intervening years. But for every Depeche Mode and Erasure, Gareth has also chosen to take a chance and work with new bands, constantly searching for, as he puts it, "music that's worth its little corner in the world. By which I mean, music that has something to say, that has value and communicates something new and original."

As such, Gareth has worked with a long list of diverse musicians, both signed to major labels and unsigned. In fact, the only constant in his career has been his ability to stay on top of the rapidly evolving music technology of the last three decades, which has not only radically changed the way we make music, but also the budgets behind it.

"The laptop is as powerful as The Garden studio was back when I was working with Depeche," he says. "And that's incredible, but probably only to people like me who have lived through it. To the new generation, who only know high-powered computers, it's probably irrelevant. We're now massively empowered, but whether the work is any better or not, I don't know. It's created a new business model where budgets have been driven down, but I guess there are pluses and minuses."

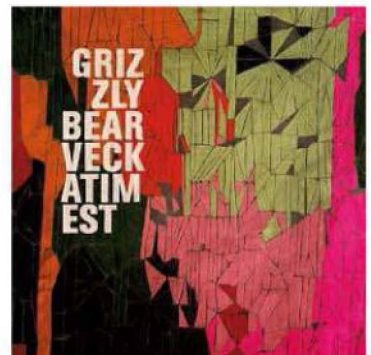
The minuses are that the computer is the tool that's being used to download the music and not pay for it, but while technology helps suck the money out at the end of the process, it also helps save money at the start...

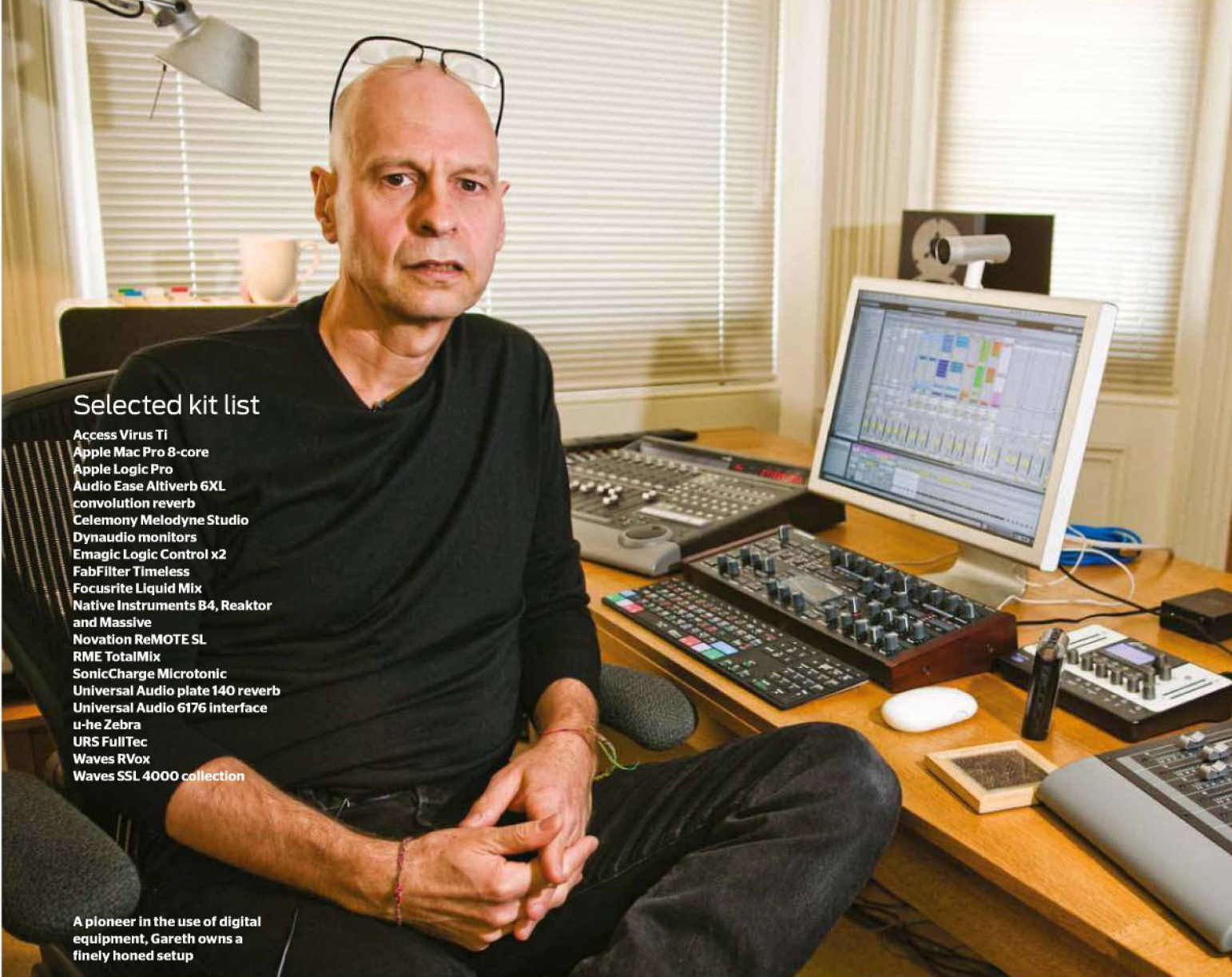
"It does allow me to work on lots of music where there's simply no budget to go into a big

Everyone wants to be a producer

When pushed for pointers on how to get into the production industry, Gareth's advice is to keep trying, as the creative rewards are still there.

"I don't just want to give clichéd answers," he says, "but I would say don't give up. We can achieve amazing things – anything we like. The means of production are available. If you have a laptop, two microphones and a band, you really can make a record that's incredible. That's how Grizzly Bear make their records. They just go somewhere with mics and record, and this third album out now is number 8 in the Billboard charts in the States. You really can do it if you want to."



A man with glasses on his head, wearing a black t-shirt, sits at a wooden desk in a home studio. He is surrounded by various pieces of audio equipment, including a large mixing console, a computer monitor displaying a digital audio workstation (DAW), and several smaller modules. The background shows a window with blinds and a lamp.

Selected kit list

Access Virus Ti
Apple Mac Pro 8-core
Apple Logic Pro
Audio Ease Altiverb 6XL
convolution reverb
Celemony Melodyne Studio
Dynaudio monitors
Emagic Logic Control x2
FabFilter Timeless
Focusrite Liquid Mix
Native Instruments B4, Reaktor
and Massive
Novation ReMOTE SL
RME TotalMix
SonicCharge Microtonic
Universal Audio plate 140 reverb
Universal Audio 6176 interface
u-he Zebra
URS FullTec
Waves RVox
Waves SSL 4000 collection

A pioneer in the use of digital equipment, Gareth owns a finely honed setup

studio," says Gareth of his home setup. "And a lot of record companies need recall and expect a mix to be adjustable four weeks after you've done it, so that's where working on a computer wins out massively."

Keeping up with the Jones

"My gear has been stripped down to this," says Gareth, pointing at his small but bespoke setup. "There's a high-powered 8-core Mac running Logic, a few fader controllers, loads of DSP like

which is how the business has to run now. The mix then goes to the band, the record company and the management. They all hear it, make some notes, and I can simply open it up at home and make adjustments as they require."

Alongside Logic's plug-ins, which Gareth is a fan of, he also has a lot of other favourites.

"I'm a big fan of the UAD plate reverb and the Altiverb reverb," he says. "I've always liked spring reverb and I also like the new convolution reverbs. On a historical note, when we were

Altiverb one - as much as anything, I like the pictures you get with it! I use much less reverb than I used to, though: maybe a plate, a spring and a room set up on three buses. The spring reverb has come back, which is nice, but the original was a big box, and unless you had big budgets that wasn't practical, so it's good to have it in my computer.

"I use a lot of compression," Gareth continues, moving onto vocal processing. "I really enjoy using RVox and the emulation of a Fairchild from Liquid Mix. Again, the UAD stuff suits me well, in particular, the LA-2A and 1176 compressors. I'm also currently loving their Fatso plug-ins. I like using FabFilter Timeless on my vocals and I also use a URS emulation of a Pultec, as well as the UAD Pultec, of course - it's got a really good sound, like a Pultec on steroids. When I need to tune the vocal I use Melodyne - it's just so easy to do. I really like the way I can tweak the pitch centre of the vocal. I once worked with a singer who studied physics, and the first time we used Melodyne on his vocal he said, 'Oh, so there was a point in studying fast Fourier analysis after all - I get it now. It's made my vocal sound better!'."

"Everyone's obsessed by in-tune vocals at the moment, so something like Melodyne allows you to concentrate on the interpretation, enunciation, delivery, energy and vibe of the vocal - all the different elements that make up a great vocal performance - knowing you can

"Melodyne allows you to concentrate on the interpretation, enunciation, delivery and vibe of the vocal knowing you can tune it afterwards, which is an enjoyable process"

the UAD2 card and the Liquid Mix. I have no analogue synths left.

"I try and stay up to date and have the latest version of Logic," he continues, "so I might work on a mix like this one by Tiny Masters Of Today that was recorded in the States but mixed over at Daniel Miller's studio. As I say, the great thing about new technology is recall, so I can just pull it up on my computer and work on it at home,

sampling sounds back in the 80s, we were also interested in recording the acoustics. So when I was out in the wastelands of Shoreditch with Depeche Mode, I had a close mic and a distant mic and would mix the two. At the time we would say, 'Wouldn't it be amazing if you could sample the sound of a room as well as the sounds in the room'. Of course, that's what a convolution reverb is now. I'm really into the



Old synths vs new

Gareth likes working with both new and old equipment when he gets the chance, but one recent experience put them side by side, enabling him to really compare the two...

"Working with plug-ins compared to the original... it's just different. There are no knobs and it's different if you can touch buttons. Daniel Miller (*Mute Records* guru) and I did an electro remix for a *Tiny Masters* track and we had a plan to start with all virtual synths, because we thought it would be easier and quicker. So we were sitting in his studio and he has some modern hardware modular synths that he's into, and we ended up using only those, not the virtual synths, and recorded everything into Ableton! I was with my assistant at the time and said to him, 'Don't you think the sound of the modular gear is just so much better?' and he said, 'No, I don't think there's any difference in sound but I can see that you two are enjoying it more.' It's like if I had an SSL desk here, I probably wouldn't use a software compressor, but I don't, so I mix in the box."

tune it afterwards, which is an enjoyable process with the software."

Synths then and now

Obviously, having been there and done it with synth legends Foxx and Depeche Mode, Gareth has seen and owned a fair few synthesisers over the years, but now they're all software.

"As a Logic user, what incredible plug-in synths come with the software!" he says.

"Additionally, I like Urs Heckmann's Zebra, which seems to have incredibly fast envelopes, and is an incredibly creative tool and semi-modular in its approach - a lot of fun. I also like MicroTonic. It's a different angle to the drum machine in Logic. I've been a fan of Native Instruments over the years, too, because of Reaktor. I had a little bit of a go just to say I could hook an oscillator to a filter, but the huge range of user-built synths is incredible - from emulations of a Juno 60 to new beatboxes that sound incredible.

"I also like the B4," he continues. "I was working on a Depeche Mode album and they had a really nice Hammond in the studio. One of the engineers was a huge Hammond fan and the B4 had just come out, so we played them side by side and were amazed. I also got excited by Massive when it came out but, for some reason, I don't use it. Maybe I'm spoilt for choice!"

Which could be true, but Gareth is keen to add that it's not how many plug-ins you have that's important - it's how you use them.

"Treat each as just a paintbrush, like someone might give you a new paintbrush that enables you to express your ideas. It's easy to get too fixated on the technology. Plug-ins are a lot of fun, and if you have fun you do better work. But, if I'm honest, you can do great work with the basic Logic plug-ins."

And while Gareth is happy to keep working in his virtual environment, he has some quite definite ideas on how it can be improved.

"There are some things in Logic that bug me," he says. "Basically, the stuff that Pro Tools does that Logic doesn't! But some of my Pro Tools-using friends are just as irritated that there are things they can't do that can be done in Logic. I'd really like to see easy channel imports from other mix sessions [*with Logic 9, this is now possible*] and whole mixing desk imports. I don't seem to be able to do that and I find it tedious. It's really easy to do it in Pro Tools."

Gareth has worked with some top artists on some great projects during his three decades in the industry, but which are his favourites?

"Working on *Metamatic* was a massive achievement. But then I've just mixed the Grizzly Bear record, *Veckatimest*, which was fantastic. Overall, though, I feel I've been very lucky, as I've worked with so many people who I get along with, which is a bonus in any job. Every so often I think I really should do something else, but then I ask, 'Can I do anything else?'. I'm happy working with musicians, creating music." **cm**

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cm/reviews

The latest computer music gear tested and rated!



88_ NATIVE INSTRUMENTS KONTAKT 4

An all-new version, but have NI done enough to ensure that theirs remains the ultimate sampler?

This month

- 88_ Native Instruments Kontakt 4
- 90_ PreSonus Studio One
- 92_ Cakewalk Sonar 8.5
- 94_ iZotope Alloy
- 96_ Cytomic The Glue
- 97_ Intelligent Devices Slip-N-Slide
- 102_ D16 Group Toraverb
- 103_ Rob Papen RP-Verb
- 104_ Scan 3XS P55 liteDAW
- 106_ Mini Reviews
- 110_ **cm** Recommends

Our promise

We bring you honest, unbiased appraisals of the latest computer music products. Our experts apply the same stringent testing methods to all gear, no matter how much hype or expectation surrounds it.

What the ratings mean

- 1-4_ Give it a miss. A seriously flawed product that should be avoided
- 5-6_ Not too shabby. It's an OK product, but not without faults
- 7_ Good. Definitely worth considering
- 8-9_ Very good. A well-conceived and executed product. Recommended
- 10_ Excellent. Essentially flawless



90_ PRESONUS STUDIO ONE

Should you be ditching your tired old DAW for PreSonus' fresh offering?



94_ IZOTOPE ALLOY

A channel strip from the makers of the mighty Ozone mastering plug-in



Awarded to products that challenge existing ideas and do something entirely new



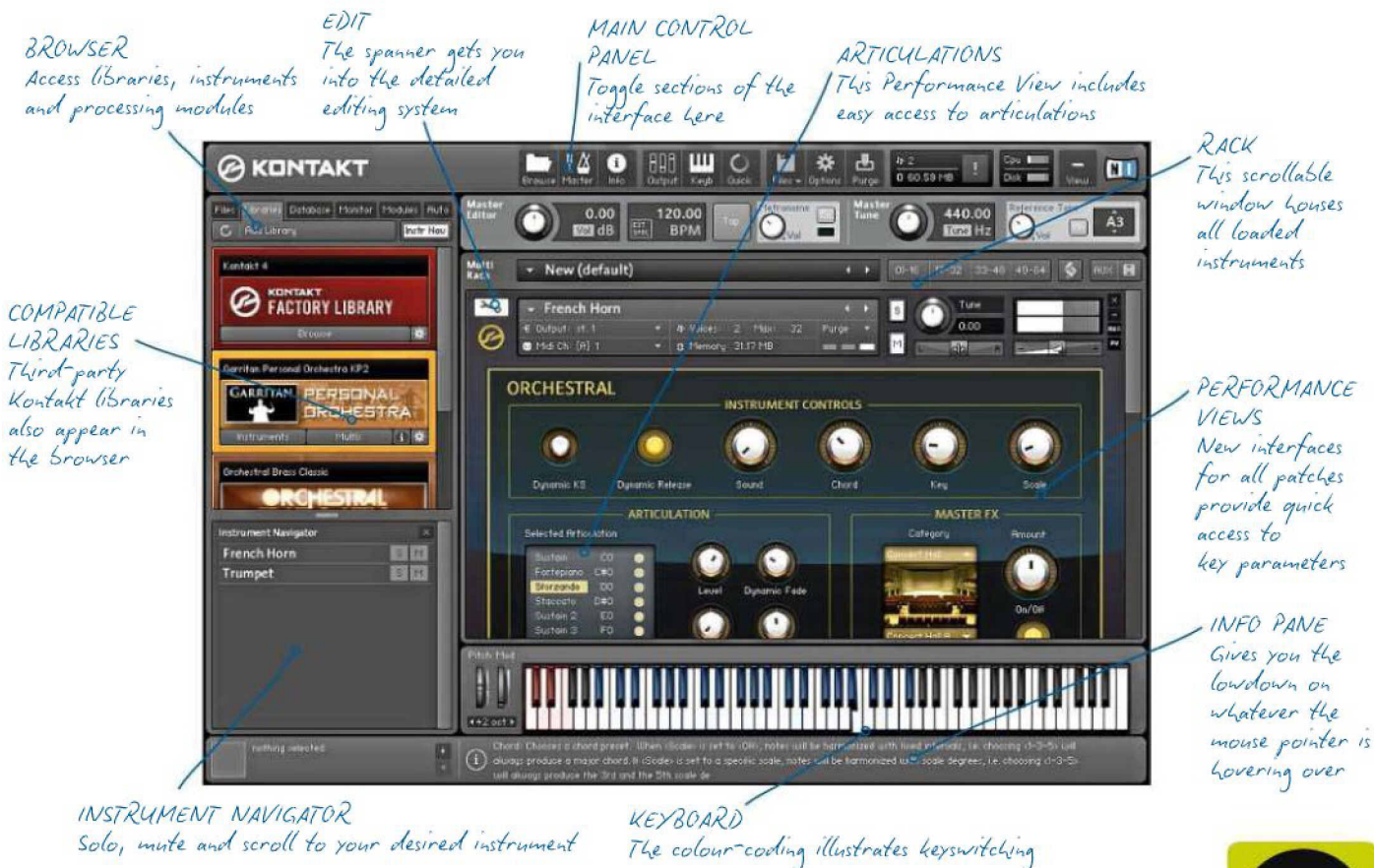
A product has to really impress us with its functionality and features to win this one



If the product exceeds expectations for its price, it will receive this gong

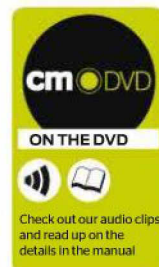


In the opinion of our editor, the best product reviewed in the magazine this month



Native Instruments Kontakt 4 £333

PC MAC



NI's flagship sampler has always been a big-hitter, but will we be knocked out by the new features that Kontakt now sports?

System requirements

PC Pentium or Athlon XP 1.4GHz, Windows XP (SP2) or Vista (32/64-bit), 1GB RAM, 48GB HD space for full install

Mac Intel Core Duo 1.66GHz, OS X 10.5, 1GB RAM, 48GB HD space for full install

> If you're a staunch NI fanatic, you'll have noticed the company's recent slimming down of their product line. This will no doubt have surprised some, and the loss of both the classic Pro-53 and B4 II is slightly unsettling. However, Kontakt is very much one of the survivors, and if the recent 3.5 update and the new version 4 that we have here are anything to go by, the company are sparing no efforts in taking it from strength to strength.

Serious sampling

For those unfamiliar with Kontakt, it's a plug-in and standalone sampler for PC and Mac with a bundled library (43GB in the latest release). Over time, it's developed into one of the most powerful programs of its kind, and can deliver everything from simple mapped hits to full-on multi-layered, modulated, filtered and effected patches. Structurally, it can run up to 64 individual instruments within its multi-part framework, and uses a modular architecture and workspace for the addition of processing and effects. It includes a variety of sample playback modes, including RAM-based and

direct-from-disk, and offers complex real-time timestretching/pitchshifting. It can import pretty much any sample format, including some original hardware sampler flavours (for example, it loads sounds from Akai CD-ROMs that are normally unreadable by your OS), and also supports loop formats such as Acidized WAV and Apple Loops.

A few months ago, v3.5 surfaced, with a revamped sample playback engine, vastly improved multiprocessor support, better ability to address large amounts of memory and enhanced MIDI learn options. These extras complemented the already impressive features added in version 3, such as instrument Performance Views, which enable the designing of graphical interfaces for Kontakt patches.

One had to wonder where NI could go with v4, and inevitably, it's a combination of refinement and new stuff, with the most immediately obvious improvement being the upgraded Performance Views (see boxout). You'll also find tag-based browsing, much like Kore, and 300 new impulse responses for the convolution processor. Existing users will

"Inevitably, Kontakt 4 is a combination of refinement and new stuff"

welcome more subtle changes, such as the manually scalable interface window.

On the sounds front, the bundled library is 10GB larger than Kontakt 3's and is now made up of seven collections: Orchestral, World, Vintage, Band, Synth, Urban Beats and Choir, the latter being the latest addition. This equates to over 1000 instruments and they come pre-tagged, so you can search by type, timbre, genre and so on. You'll also find a few escapees from discontinued NI products, such as Elektrik Piano, and some new VSL-sourced solo strings for the Orchestral collection, too.

Tech talk

There are a couple of new technical features that should get producers talking. First is the inclusion of a lossless data compression format (NCW), which is said to achieve between 30% and 50% space savings. Although the library doesn't come ready compressed, Kontakt 4 can batch convert any existing library – a good job for a rainy afternoon. In use, there seems to be no additional CPU hit associated with using NCW, and the RAM preload is reduced, as you might expect. With NCW patches, we did find that some digital artifacts would afflict the sound near the maximum number of voices, but simply raising the voice limit alleviated this.

The other big news is AET, or Authentic Expression Technology. Put simply, this combines an FFT filter module and spectral analysis to enable morphing from one sound to another (as opposed to simply crossfading between samples). In practice, this can be used to move smoothly between velocity layers of multisampled instruments, but more powerful is the option to morph between different sounds completely. The manual has a thorough explanation of how AET works (read it on the DVD), and there are five patches in the Choir library that morph between vowel sounds (as heard in our audio demo). Sadly, though, these are the only patches in the library that use AET.

We spent some time working with AET and it is no doubt impressive and arguably the way forward for multisampling. Even so, if you're a tweaker, you'll no doubt find plenty of creative ways to use and abuse it. And those who really like to go in-depth will appreciate the improved



The improved browser enables you to search using tags, making it much easier to find the sound you're after



More than just a sampler patch, here's the Performance View serving up step-sequencing

Library matters

One of Kontakt's big draws is its included library. By today's standards, 43GB may not be mind-blowing, but the real attraction is its integration. As mentioned, the Performance View system has been enhanced, and what began in v3 as a neat idea has now really come of age, both visually and in terms of functionality. Each of the seven library categories has its own skin, but beyond this, features are instrument-dependent, ranging from ready-made EQ controls and playback randomisation to velocity response curves and one-touch, scale-specific chord harmonising. You can also select articulations for many of the orchestral

patches. However, it's the Urban Beats category that we found most impressive, with its separate tabbed interfaces for hits, loops and the groovebox. The latter even enables pattern-style programming.

We'll concede that much of this was in Kontakt 3. But the improved graphics and feature tweaks have given the library a genuine ROMpler feel, while retaining the full back-end flexibility. However, there's no simple way of combining the new or 'upgraded' sample content with that from previous versions – if you're upgrading, you'll be reinstalling sample content that you already have, which is a pain.

Script Processor, although we expect that this will see the most action in the hands of third-party sample library providers.

King of samplers

Given the fairly recent v3.5 update, Kontakt 4 feels like less of a leap forward than it might have. Overall, the emphasis is clearly shifting towards usability rather than piling on more features, and given the immense feature set that Kontakt already has, this is a good thing. All in all, Kontakt retains its position at the top of the sampling tree, and although it can be daunting for new users, the improved Performance Views and attribute-tagged library let you forget about what's under the hood, if you want to.

The big question for existing users is whether they should upgrade, as version 3.5 is still a perfectly good sampler. Thankfully, the upgrade isn't exorbitantly expensive (\$149), but you might also want to check out the new Komplete 6 bundle, as there's currently a pretty attractive crossgrade available for users of all Kontakt (and Reaktor) versions, costing £263. **cm**

Contact via website
Web www.native-instruments.com
Info Upgrade, \$149

Alternatively

Steinberg HALion 3
cm78 >> 8/10 >> £343

Powerful, but with less content and an interface that's showing its age

MOTU MachFive 2
cm121 >> 9/10 >> £349

Has a 32GB library, good features and an easy-to-use interface

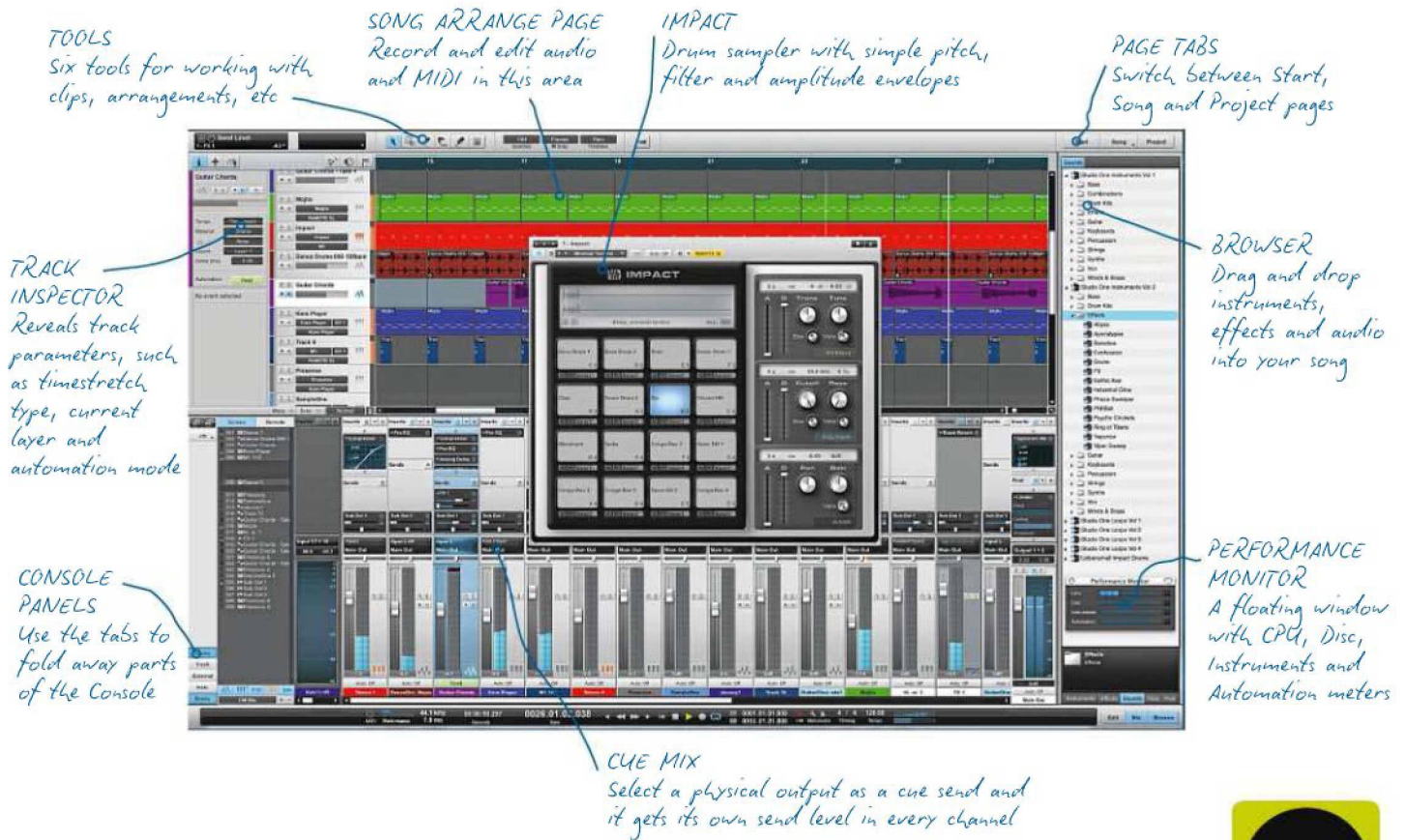
Verdict

For Extensive pre-tagged library
New AET feature is promising
Lossless data compression option
Improved Performance View system
Extended convolution library

Against Can still feel complex
Only five AET patches

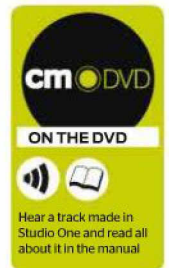
Kontakt holds on to its status as the champion sampler to beat, with the new features boding well for its future

10/10



PreSonus Studio One £349

PC MAC



A big name in hardware enters the software arena, but can their brand new DAW really compete with the established players?

System requirements

PC Pentium 4 1.6GHz/AMD Athlon 64, Windows XP/Vista, 1GB RAM, Internet connection for authorisation

Mac G4 1.25GHz/Intel Core Solo 1.5GHz, OS X 10.4.11 or 10.5.2, 1GB RAM, Internet connection for authorisation

> The recent arrival of Propellerhead Record has shown that there's still room for new DAWs. However, Record neatly sidestepped a head-on collision with the big hitters by being slightly leftfield. By contrast, PreSonus' first foray into music software, Studio One, squares up directly with the Logics and Cubases of this world. Are they mad? Let's find out.

Studio One is said to include all you need for music production, from multitrack recording to effects processing, sound generation, and, in the Pro version we're reviewing here, mastering. The cheaper Artist version (also bundled with all PreSonus FireStudio interfaces) has a reduced feature set, with other differences being fewer plug-ins and no third-party plug-in support.

The main production hub is the Song, which features unlimited audio, MIDI and instrument tracks, buses and effects channels. There are also 26 PreSonus effects; four instruments; automation; latency compensation; 32-bit or 64-bit processing; real-time timestretching; and AU, VST and ReWire support.

Mastering is performed in Projects, and these serve as a place to sequence mixdowns, as well

as produce Red Book CDs, MP3 CDs and disc images. Finished mixes can easily be shifted between Songs and Projects, too.

Starting out

To get you up and running with a minimum of fuss, Studio One includes a start window, in which you choose and create projects and songs, select audio interfaces and access tutorials. Here, users of PreSonus' FireStudio range of audio interfaces can benefit from some interface-specific song templates - check the boxout for the other big advantage.

Rounding things off, Studio One has around 10GB of sound content, including loops and samples, plus a special sound set for NI's Kore Player. They've also bundled in Toontrack's EZdrummer Lite and NI Guitar Rig 3 LE.

Once you've set up a Song, you're presented with an arrange page for recording and sequencing audio and MIDI, with a number of optional side panels. To the left, there's a track Inspector; to the right, a Browser for files, sounds, instruments and effects (you drag each from the browser into your project), and at the

"Overall, Studio One is extremely easy to get to grips with"

bottom, there's a mix console. This bottom panel can also house an audio or MIDI editor.

The same but different

No doubt you've already spotted the striking similarity to Logic Pro, Ableton Live and Pro Tools - if you've used any big-name DAWs before, you'll be right at home with Studio One. We found recording audio incredibly easy, and the setup of new audio tracks and routing of signals is much like other apps. For multiple takes, you can either use cycle recording (à la Cubase or Logic), or a MIDI and audio track 'layer' system not too unlike Pro Tools playlists. Beyond this, most editing functions, such as cutting, copying and fades, can be performed in the main arrange screen, using the six mouse tools (Arrow, Range, Split, Eraser, Paint and Mute). There are no folder tracks, but editing multiple tracks 'as one' (ie, multitracked drums) can be done via Edit Groups, which also link some console features, such as fader levels.

Studio One includes timestretching, and it can automatically stretch any tempo-tagged audio loops that you import. Going beyond this, individual tracks can be set to follow tempo changes and be repitched in real time using one of three modes: Drums, Solo and Sound. In use, we preferred the manual method of holding Alt/Option and dragging the region edge.

Shameless plugs

As mentioned, there are 26 effects plug-ins, including dynamics, EQ and metering (see the Studio One manual on the **cm** DVD for detailed descriptions of each). In use, we were most impressed by the Ampire amp modeller, the Pro EQ and the Room Reverb. All included effects feature a MicroView in the mixer, for direct access to the most important parameters and perhaps a relevant meter - it's a bit fiddly, but still handy. There's also the PipeLine plug-in for plumbing in external hardware.

Studio One has four PreSonus instruments included: Impact drum machine, Mojito synth, Presence ROMpler and SampleOne sampler. Having worked through their libraries, Presence's is the most immediately gratifying, with 346 sounds ranging from strings and pads to basses, effects and keyboards.

A nifty system called Control Link enables the quick binding of physical controls to parameters on effects, instruments or in Studio One itself



Presence includes plenty of workstation-style sounds and is our favourite of Studio One's instruments



Cue Mix is a doddle to set up - simply select the outputs you'd like to use for submixes

Right on cue

Studio One's integrated Cue Mix system makes it easy to set up monitor mixes for artists to hear while recording. You allocate the physical outputs you want to use in the audio I/O settings, then each console strip shows an additional send level and pan for the monitor mix. Clicking the padlock icon transfers the current channel level and pan to the send controls - in fact, this is the default mode, so activating Cue Mix immediately gives you a monitor mix balance matching your output mix.

So far, so good. However, the real beneficiaries of this system are those using PreSonus FireStudio audio interfaces, as their Cue Mix fader will

also include a zero-latency button - with this engaged, monitored inputs are routed directly to the respective Cue Mix output using the audio interface's integrated mixer - ie, they don't pass through the Studio One software. Thus you get an adjustable zero-latency input signal combined with your other cue signals. The only thing to note is that tracks using this mode will not include any insert effects you have on the channel. Even so, there's nothing to stop you using an effect send to add a dash of reverb, as this will only incur a delay on the reverb itself (like a predelay) and so shouldn't be too distracting.

(eg, mixer faders). Once you've made a map of your MIDI controller, you just twiddle a physical control, then a software one, and press the Link button. Mappings can change to reflect the currently active plug-in, too.

Overall, Studio One is extremely easy to get to grips with, and for a brand new program, it feels very accomplished. Rather than reinvent the wheel, PreSonus have nabbed the best bits from the leading music apps and built a system that has none of the baggage that sometimes undermines the established players. We also found it to be totally stable - it didn't crash once.

However, we do feel that the instruments are a little underpowered. What's more, Studio One can't yet compete with the depth of MIDI processing that Logic offers, or the offline audio processing of Pro Tools, for instance. And although there are some great effects, there's no real-time pitch correction and no freeze function. Still, Studio One is an entirely viable alternative if you don't need every last bell and whistle of its competitors. And let's face it: many of us don't. **cm**

Contact Source Distribution, 020 8962 5080
Web www.presonus.com
Info Studio One Artist, £199

Alternatively

Apple Logic Studio

cm143 >> 10/10 >> £399

Possibly the best Mac DAW bundle, with plenty for creative producers

Digidesign Pro Tools 8

cm136 >> 9/10 >> £213+

Great for audio work in particular, with a number of editions available

Verdict

For Easy, familiar interface

Many effects plug-ins

Good audio recording and stretching

Useful integrated mastering suite

Accomplished for a new program

Cue Mix integration for FireStudio users

Against Instruments underpowered

Features not as deep as some DAWs

Not as comprehensive a package as the big names, but Studio One certainly matches up in quality and usability terms

8/10

ARPEGGIATOR

One on every track, complete with useful presets

SESSION DRUMMER 3

Totally overhauled, there are some stompin' kits and lively patterns

ALIAS FACTOR
Dial in digital grit with this new bitcrusher plug-in

METRONOME TRACK
A dedicated click track to keep you right on the beat

MATRIX VIEW
Break away from the linear arrangement view and fire off MIDI and audio loops as you please

HF EXCITER
Could be just the thing to brighten up your tracks

MEDIA BROWSER

Locate MIDI and audio clips and drag them into your project, or save presets into the browser

Cakewalk ^{PC} Sonar 8.5 £435



We were expecting Sonar 9 about now, but we've been given 8.5 instead. Is this pay-for update not half bad or just half-baked?

System requirements

PC Intel P4 2.8GHz/AMD XP 2800+, 1GB RAM, Windows 7/XP SP3/Vista SP2

> Cakewalk are nothing if not dependable. Every year, around Autumn, they release a major upgrade to their flagship DAW, Sonar. In case you're unfamiliar, Sonar is a complete music production package, offering audio and MIDI recording, mixing, 15 virtual instruments (synths, drum machines, pianos, etc), tens of effects, editing features such as audio quantise and pitch correction, and loads more.

It comes as a surprise, however, that the latest Sonar offering is not a full upgrade, but rather a pay-for point release. This has caused some consternation amongst Sonar users, but such concerns are, in fact, unnecessary. Not only is Sonar 8.5 packed with interesting new features (and some pumped-up old ones), but it sports a lower-than-usual upgrade price. It runs on Windows XP, Vista and Windows 7, though we were unable to test with the latter as it wasn't released until near the end of our review period.

We're looking at the full Producer Edition and some of the most significant improvements in 8.5 are updates, such as Step Sequencer 2.0. The first model of this was inextricably tied to drum maps, but this new one can be routed to any

MIDI output or software instrument. The individual rows are now expandable, revealing controls over timing, flam, portamento and, most importantly, velocity, which is shown in the familiar vertical bar-per-step fashion. Not as obvious is that converted MIDI clips retain their timing, if you want them to - very nice!

Drumming up support

Beat merchants will be pleased to learn that the third incarnation of Session Drummer is vastly improved. This version presents a slightly gimmicky animated interface and a selection of sampled electronic and acoustic drum kits, and MIDI patterns suitable for a variety of styles. Amongst the acoustic and mixed drums are some astonishingly realistic combos that certainly had our toes a-tapping. You can bring your own samples and patterns in, too.

In our Sonar 8 review, we complained that it wasn't possible to use Cakewalk's Arpeggiator MIDI FX plug-in on Sonar's instrument tracks. Now, though, there's a powerful arpeggiator built into each and every MIDI and instrument track, featuring hundreds of preset patterns,

"Some of the most fun we had with Sonar 8.5 came courtesy of the Matrix View"

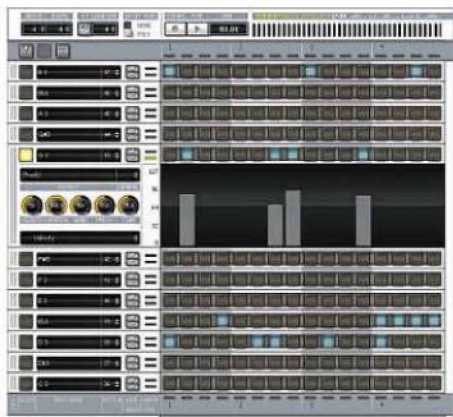
designed for drums, guitars, electric pianos and more. You still can't use Sonar's MIDI effects on Instrument channels, though...

The Matrix reloaded

Some of the most fun we had with Sonar 8.5 came courtesy of the Matrix View, which is a performance environment for audio and MIDI loops à la Live's Session View and, indeed, the Groove Matrix in Cakewalk's own Project 5 (although it's not a port - it's brand new code). The interface consists of a grid, in which each row is assigned to any track in your project. Splayed out across these rows are an unlimited number of cells, into which you can drag a single MIDI or audio clip - only one cell per row can be active at once, but you can pile on as many tracks/rows as you like. If Groove Clips are used, your loops will lock to the current tempo. Loops can start playing immediately or at the next bar or beat division (down to a 64th-note), and can be retriggered, latched, controlled via MIDI and more. Your real-time performances can also be recorded for further editing.

The AudioSnap audio quantisation system is now at version 2. The palette has been reworked to improve workflow, and it certainly makes much more sense to us than previously. There's now a dedicated tool that enables you to drag and snap individual transients into position, and tempo detection and audio rendering quality have been improved, among other things.

We've covered the headline additions, but suffice to say that enhancements and refinements abound. There's REX file support, audio engine tweaks, hardware hotswap capability, tabs to flip the mixer on the lower half of the display to show the Synth Rack or revised Media Browser (formerly Loop Explorer)... the list goes on and on. Overall, the new tools in 8.5 work well and the effects sound terrific. As has typically been our experience with Cakewalk, the software is reassuringly stable (we were



The Step Sequencer is no longer just a handy accessory but an inspirational compositional tool



Audio engineers will be in heaven with the new Percussion and Vocal Strips.

Effective strategies

The 11 new effects bundled with Sonar 8.5 constitute yet another pleasant surprise, as this kind of stuff is usually reserved for full version updates. The shining stars of the group are, without doubt, the PX-64 Percussion Strip and the VX-64 Vocal Strip. The former offers transient shaping, dynamics, EQ, delay and tube saturation for knocking your percussion tracks into shape, while the latter is for shining up vocals, comprising a de-esser, compander, tube EQ, doubler and delay. Oh, and saturation, of course! They both sound the business and could easily retail for the upgrade price on their own. As a bonus, there are dozens of presets for

each, covering a wide range of needs.

Joining these channel strips are several individual effects taken from Cakewalk's Project 5 DAW. There's a particularly nice filter/bit-crusher in the shape of Alias Factor, and we were also pleased with HF Factor, an exciter designed to be used as an overall sweetener, adding high-end harmonic content to make the signal brighter and give it increased presence.

There's also a mod filter, a retro phaser, a chorus/flanger, another delay (stereo, natch), the self-explanatory Stereo Compressor/Gate and a rather nice, CPU-friendly parametric EQ. Oh, and a new version of Studioverb.

running the 8.5.2 update, which should be out by the time you read this). Furthermore, we had no trouble running Sonar on machines that fell well below the recommended spec.

One caveat is that, when using the 64-bit version, certain features and functionality (eg, MPEX timestretching, ReWire to 32-bit apps, QuickTime support) are absent - we can't blame Cakewalk, however, as they're clearly dependent on third parties for these technologies to be implemented for 64-bit operating systems.

Sonar so good?

In our Sonar 8 review, we concluded that that version was focused primarily on optimising what was already there. However, 8.5 - a 'mere' point update - is overflowing with new goodies that will not only improve your workflow, but offer inspiration as well. It's definitely worth the upgrade fee for existing users (that being noticeably less than the usual full version rate), and Sonar remains a keen musical investment for anyone who buys the package outright. **cm**

Web www.cakewalk.com
Contact Edirol Europe, +44 (0) 20 8747 5949
Info Upgrade for Sonar 8 PE users, £89
Sonar 8.5 Studio Edition, £265

Alternatively

Steinberg Cubase 5
cm137 >> 9/10 >> £499

It's massively popular and is both cross-platform and mature

Digidesign Pro Tools 8
cm136 >> 9/10 >> £213+

Ace for audio and good with MIDI, with a solid package of plug-ins, too

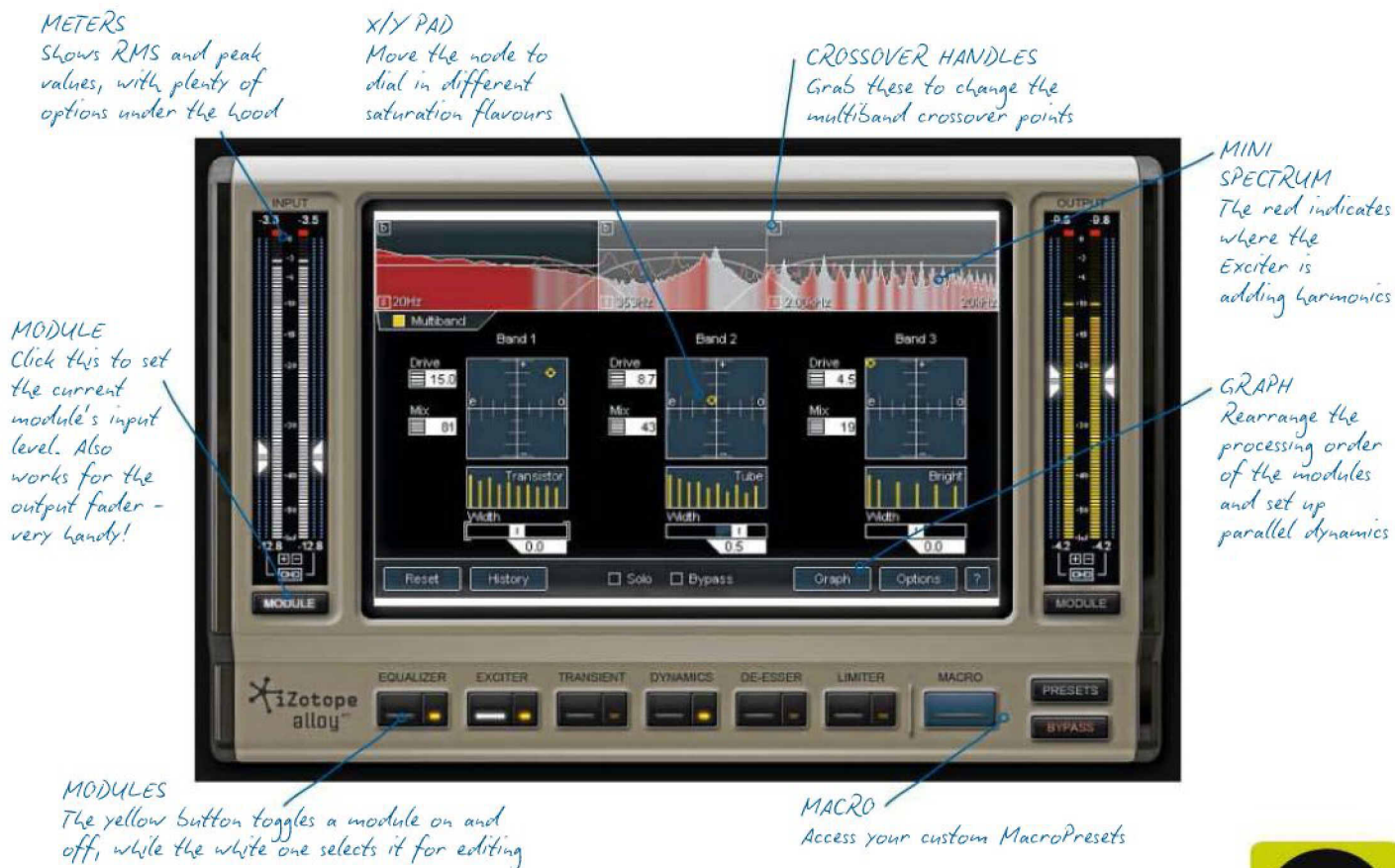
Verdict

For Percussion and Vocal Strips rock!
Step Sequencer is much more useful
Arpeggiator presets are a goldmine
Matrix View encourages spontaneity
Solid performance
The most comprehensive Windows DAW

Against 64-bit users lose features
No MIDI effects on Instrument Tracks

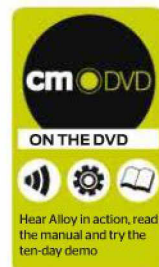
Don't be fooled by the name: Sonar 8.5 is essentially a full new version in disguise and a must-have upgrade

10/10



iZotope Alloy \$249

PC MAC



Having put the finishing touches on Ozone 4, iZotope are now mixing it up with a forward-thinking channel strip plug-in

System requirements

PC Windows XP/x64/Vista, VST/DX/RTAS host

Mac OS X 10.4, AU/VST/RTAS host

> The iZotope brand is synonymous with quality digital mastering, with the company's Ozone 4 plug-in being one of the best finalisers we've ever come across - it scored 10/10 in **cm138**. Many users also found Ozone to be a potent mixing tool, too, albeit a heavy-handed one. With this in mind, iZotope have come up with Alloy, a dedicated Ozone-esque 'channel strip' that's geared towards everyday mixing.

The first module is an eight-band EQ with spectral analyser overlay. Filter types available per band are: bell, high/low shelf, and high- and low-pass, in normal and steep varieties. Aside from the steep filters, the EQ is much like using Ozone's EQ in Analog mode - it's nothing special, but it'll cover the majority of EQ tasks.

Next up is the Exciter, which is a dedicated saturation stage. You get Drive and Mix sliders, plus an X/Y pad with which to select a saturation style or blend thereof: smack in the centre is Tube, while going clockwise from top right we have Transistor, Tape, Warm and Bright. The overall effect can be subtle (we particularly liked it on basslines), though you can push it into overdrive by using the module's input slider.

There's a simple stereo Width slider, too.

Like the Transient and Dynamics sections, the Exciter can work in multiband mode, with up to three bands and adjustable crossover points. Thus, you can apply different saturation styles to each band, or drive the mid-range harder, etc.

Make it snappy

Moving along, we come to the Transient module, which can independently process the attack and sustain levels in a signal. Adjusting the attack works quite well, but the sustain portion can sound artificial and 'forced' - the transition from attack to sustain can be too obvious. It's more useful in multiband mode - eg, to reduce low-end sustain on a kick drum to cure any rumble, enhancing the upper mid-range snap of the snare, or accenting elements of mixed loops.

Far more impressive is the Dynamics module - in fact, there are two of them, each containing a gate/expander and compressor. With minimal settings on the former, you get upward expansion, which makes sounds below the threshold louder - higher settings tend towards gating. Very fast attack and release times are

"We had no issues using Alloy on all tracks in a mix"

possible (0.01ms and 1ms respectively), and you have a choice of Digital or Vintage styles, the former being just like Ozone's compression, and the latter giving a more lively response. Another option not in Ozone is Alloy's Soft Knee mode – one thing we're glad to see carried over is the RMS detection option, which is great for levelling signals without causing pumping (you can always catch errant peaks with the second Dynamics stage or Limiter). You can also run the stages in parallel, for parallel compression.

An external sidechain signal can be routed to the expander and/or compressor of each of the two Dynamics sections, and in Multiband mode, the signal can be sent to specific bands. The Crosschaining feature, meanwhile, routes the filtered signal of one band into the sidechain of another – we found this particularly useful for ducking the mid-range in a drum beat when the kick hits, aiding clarity, especially on overdriven beats with mid-range harmonics.

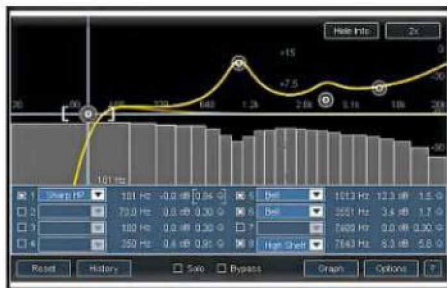
The De-Esser reduces sibilance in vocals – use the handles in the mini spectrum to zone in on the offending 'ess' sounds, then dial in the suppression. You can duck the entire signal (Broadband) or the sibilant range (Multiband). It works as expected and can tame harshness in other sources such as cymbals, too.

Reaching the limits

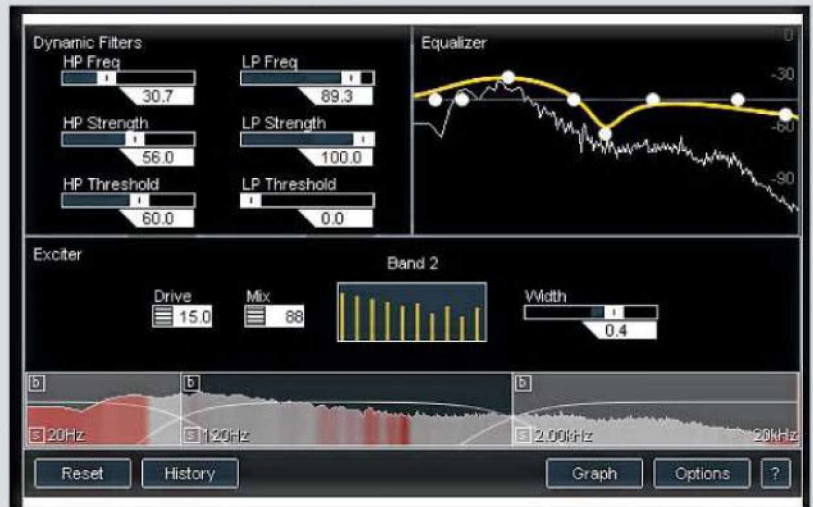
The final module is the Limiter, sporting the Soft and Brickwall modes from Ozone, being more appropriate here since they aren't really clean enough for modern mastering, but they do have character. Also on the Limiter page is phase inversion/shifting and a DC filter.

Most channel strips show everything on one screen; Alloy is too complex for this, but there is a page that offers global control (see boxout). CPU usage is fine, and we had no issues using Alloy on all tracks in a mix. Latency is low (9ms), and there's a zero-latency mode, too, which sounds near-identical, bar some mild distortion when using fast attack times or the limiter.

In terms of practicality, while you get two Dynamics modules, there's only one EQ. Thus you can't apply low-/high-pass filtering, dynamics, then tone-sculpting EQ, as you can with pretty much all other channel strips. And while you get the History/Undo section from Ozone, it has the same flaw in its comparison



Alloy's EQ is similar to Ozone's, including a sweepable band-pass filter when you Alt-drag on the graph



Alloy doesn't have a dedicated filter module, so we created our own 'Dynamic Filters' panel

Macro machines

Alloy's Macro page gives you the ability to group together key controls all under one screen, much like a traditional channel strip view. The area is divided into four panes, and you can allocate to each the parts you'd like to see – for instance, in our screenshot above, the upper right is a mini EQ, while across the bottom two panes we've got the Exciter controls. These MacroBlocks are ready-made layouts that you pick from a list, and for each Alloy module, there are layouts of varying sizes and complexity.

For greater depth, you can define custom MacroBlocks, with faders labelled as you wish. Each fader can

then be linked to multiple parameters throughout Alloy – you could define a parameter called Character that, when increased, causes the Exciter's Drive to be raised, while also increasing the gain and Q of all EQ bands. If you've ever used Ableton Live's Macro system, you'll grasp the concept immediately. We used MacroPresets to create a set of 'Dynamic Filters', using one Dynamics section in Multiband mode and controlling the crossover points and gain to create high- and low-pass filters, with optional gating/expansion.

It's a shame, though, that you can't set a default preset to be called up whenever you load Alloy.

system: if you wind back to an earlier version and change something, all later comparison slots are wiped. iZotope say they hope to remedy Alloy's shortcomings in an update.

Precious metal

In use, we found Alloy to be not just a capable mix processor but a cool creative tool to boot. Its open-ended approach flies in the face of the traditional channel strip concept, and while some users might find the flexibility to be more of a hindrance than a help, this is undoubtedly what will endear it to others. And in any case, more than 150 easy-to-use presets are supplied, grouped according to application (drums, vocals, etc) and they all have MacroPresets.

For each of Alloy's modules, there are plug-ins out there that sound as good or better, but as a package, it all adds up to more than the sum of its parts, with some functionality that would be very hard to replace (eg, the Dynamics section). Overall, then, Alloy's precise, powerful Swiss Army knife approach nicely complements the kind of 'virtual vintage' plug-ins that most of us already have plenty of. **cm**

Contact izotope@izotope.com
Web www.izotope.com

Alternatively

Wave Arts Power Suite 5
cm102 >> 9/10 >> \$525
Contains the great TrackPlug 5 channel strip (\$200 on its own)

Voxengo Voxformer
N/A >> N/A >> \$70
Twin-compressor channel strip that's particularly suited to vocals

Verdict

For Powerful Dynamics modules
Multiband mode with clean crossovers
Low-/zero-latency
Clever Macro system
Per-module input/output faders
VST3-compatible

Against Transient module not great
No dedicated filter module
Some minor flaws and annoyances

Alloy largely succeeds in delivering a high-quality, flexible mixing tool

8/10

Cytomic The Glue \$99

PC MAC



Yet another emulation of the famous SSL bus compressor, but one with several notable points – not least its price tag

> There are numerous options for those seeking a virtual imitation of SSL's famous hardware bus compressor, including Universal Audio's 4K Buss Compressor, the Waves 4000 Series bundle, and, of course, the official Stereo Bus Compressor for SSL's own Duende DSP system. But these are all pretty expensive, so the arrival of Cytomic's effort, The Glue, at a very reasonable \$99, certainly caught our attention.

Being a non-endorsed imitation, The Glue is free from the requirement of rigorously replicating the original, and Cytomic have taken the opportunity to include some additional features that you won't find on the real thing. For The Glue, this means additional Range and Mix controls (see boxout), a PeakClip option and a sidechain feature with external and low-cut options. The only minor omission is automatic makeup gain. On the face of it, then, if this plug-in actually *sounds* like an SSL, Cytomic may have trumped the big boys.

Grand designs

So, back to the basics. The Glue aims to follow SSL's original E and G Series bus compressors, and this has been achieved through component simulation. The plug-in is cross-platform, in VST, AU and RTAS formats (although RTAS for Windows is still in development), and it's intended to be as CPU-efficient as possible.

If you're familiar with the SSL original, you'll recognise features such as 'auto' release, three possible compression ratios (2:1, 4:1 and 10:1) and the exact same attack times (see the manual on the disc for the full spec). However, there are some differences, including a super-fast 0.01ms attack option and extra release times (0.4 and 0.8s); and the original 0.3s release time is labelled here as 0.2s. Threshold, makeup gain and the meter have also been given new names.

On the bench, we set up a couple of our favourite SSL settings (subtle pumping mix compression with a 2:1 ratio and a more



aggressive setting for drum kit processing), and both had that familiar sound, comparing very well to Universal Audio's 4K Buss Compressor.

So, what of the 'new' features? First up, the sidechain filter affects both internal and external sidechain signals and enables you to roll off low frequencies right up to 2kHz. This works well at reducing pumping on mixes, but also helps with fine-tuning compression for low-end heavy sounds, such as basses and kick drums. Next up, both the Mix and Range controls add a host of options for dialling in the compression flavour, and in practice we found this made The Glue an

incredibly flexible compressor suitable not just for use on the master bus, but for individual instruments too. Finally, the PeakClip option with its associated red LED is useful if used carefully, though it shouldn't be confused with analogue-style soft saturation, as it will produce harsh distortion if pushed too far.

The Glue is a world-class plug-in and, at \$99, we reckon it offers amazing value. Factor in the extra options and you have a very tidy and useful compressor with more real-world uses than the design it's based on. **cm**

Contact sales@cytomic.com
Web www.cytomic.com

System requirements

PC Intel/AMD CPU with SSE2, Windows XP/2000, VST host

Mac Power PC or Intel CPU, OS X 10.4 or 10.5, VST/AU/RTAS host

Alternatively

Waves SSL 4000 Collection
cm99 >> 10/10 >> \$1000

Fully endorsed SSL bundle, including EQ, channel strip and bus compressor

Universal Audio 4K Buss Compressor
N/A >> N/A >> \$199

UAD users should definitely check out this excellent (though unofficial) SSL emulation

Verdict

For Great-sounding SSL emulation
Sidechain filter
Responsive metering
Easy interface
Mix and Range add flexibility

Against No automatic makeup gain
Windows RTAS version not ready

More than just a bus compressor, this fine-sounding and affordable debut from Cytomic deserves to be a hit

9/10

Home on the Range

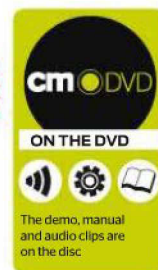
The Glue includes a couple of features that make it ideal for mastering. First up, the Mix knob enables you to blend the dry and compressed signals, and in a mastering situation this can help if you need to add compression flavour but don't want to sacrifice too much in the way of dynamics.

Along similar lines, but achieved in a different way, is the Range control, which affects the maximum amount of compression produced. In practice, because

transients are hit hardest by any compression, as you gradually dial in this parameter, you'll start to hear them being affected. It's also worth mentioning that the original SSL circuitry does have a range limit, but it varies slightly depending on the model. Setting The Glue's Range between -60dB and -80dB is said to match these various limits, but you can actually go beyond this point, reducing the range to achieve a less processed sound.

Intelligent Devices Slip-N-Slide \$79

PC MAC



We slide into the world of spectral manipulation with yet another bonkers effect from the brainiacs at ID

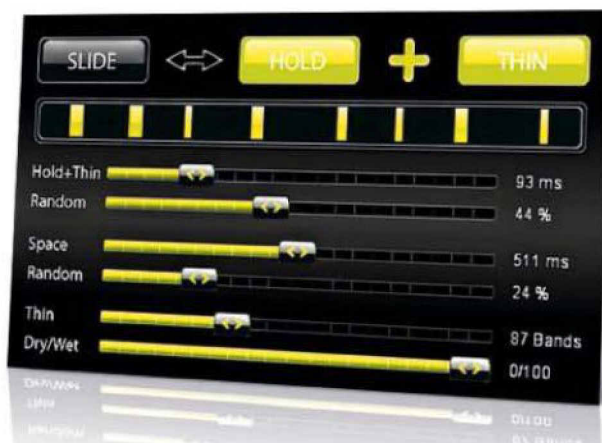
> In recent issues, we've reviewed Intelligent Devices' MegaDelayMass (8/10, **cm145**) and Marshall Time Modulator (9/10, **cm143**), and now, rounding off the company's opening salvo of effects plug-ins, we have Slip-N-Slide. This one offers spectral manipulation, with a novel method of alternating between the wet and dry signals. You can set the times for both wet and dry periods using the Slide/Hold and Space parameters, with the stripy bar at the top of the interface illustrating the rhythm. The longest processed slice is roughly half a second and the maximum 'space' almost a second, and you can randomise the timings with the Random slider.

As for the actual processing, there are three modes: Slide, Hold and Thin. You can combine Thin with either of the other two, giving five modes in total. In essence, Slide looks at the spectral content of the beginning and end of a processing section and interpolates the sound in between, producing a transition effect. Hold freezes the spectral content for the length of the processing section. Finally, Thin applies a resynthesis filter, whereby only the strongest signal components are heard; you select the number of bands to control the fidelity of this.

The caveats are that the plug-in introduces a 500ms processing delay (see *Delays ahead*, below) and it's VST-only. Disappointingly, there's no sync-to-host tempo option either, although we understand this is in the pipeline.

The sound of silence

We threw a variety of sounds at Slip-N-Slide with the process time set to maximum (488ms) and an equal Space setting. It quickly became clear just how much Slip-N-Slide's behaviour is dictated not only by the frequency content, but also by how it changes over time. Take a held organ note, for example. This reasonably pure sound is pretty much static, so both Hold and Slide sound quite subtle and similar. However, take a drum loop and the complete



opposite is the case. Here, in both Slide and Hold, single sounds such as snares are stretched. The overall impression is of a sound being bent over time, with Slide producing a morphing effect and Hold a frozen one. But you've also got the Thin option to factor in. Add this to either of the other processes and you can get anything from subtle graininess to full-on metallic sounds.

In practice, at extreme settings, with Thin set to two bands, a Space setting of zero and quite long processing sections, Slip-N-Slide produces amazingly warped, almost watery effects. What's more, because the unit doesn't sync to tempo, even with random settings of zero, there's an underlying unpredictability to it. At times, this can be too much and you'll probably find yourself bouncing down sections and picking out the bits you like. But if you're willing to enter into its world, Slip-N-Slide can produce some seriously unusual effects. For its sheer wackiness, it's our favourite of ID's plug-ins. Let's hope a tempo sync option arrives soon. **cm**

Contact proaudio@intdevices.com

Web www.intdevices.com/proaudio

System requirements

PC Windows XP/Vista, VST host

Mac Intel/PPC CPU, OS X 10.4, VST host

Alternatively

Native Instruments Spektral Delay
cm33 >> 9/10 >> £N/A

Discontinued, but if you manage to track down a copy, it's great for creative manipulation

GRM Tools plug-ins
N/A >> N/A >> \$399+

A variety of bizarre effects from these long-standing vendors of unusual plug-ins

Verdict

For Slide effect is extremely cool
Great for loops and drums
Fantastic Thin effect
Creatively unpredictable

Against No host tempo sync yet
Currently VST-only
Patience needed

Another weird and wonderful offering from Intelligent Devices, but you might want to hang on for the host sync update before taking the plunge

9/10

Delays ahead

In order to do its thing, Slip-N-Slide needs to introduce a processing buffer, and in this case it's 500ms long. If you're mixing or working offline and your host software has plug-in delay compensation, everything else should get shifted back to match. Even so, if you're looking at the waveforms or even your timeline marker, you'll probably notice that the audio is delayed.

Unsurprisingly, using Slip-N-Slide on a live input is a non-starter. This is a shame,

but as it says in the manual (which is on the DVD, if you'd like to read about the plug-in in more detail), until someone invents a way to bend time, there's no way around this.

For mixing and editing situations, we found that the processing delay didn't hinder our creativity. However, you can never really escape it, so even when you change the mix control from dry to wet, for example, there's a corresponding pause before it takes effect.

D16 Group Toraverb €35

PC MAC



This “space-modulated reverb” is the fifth member of the SilverLine family, but can it do its predecessors proud?

Toraverb is a new addition to D16 Group's affordable SilverLine effects range. Sporting the collection's now-familiar interface style, it's a sexy-looking piece of kit – at least for those who appreciate the kind of old-skool aesthetics that bring to mind a 70s Technics hi-fi.

But just like the other SilverLine plug-ins, Toraverb's beauty isn't merely skin deep – it has a seriously fine sound to match. The reverb is based around two main sections: Early and Late, with a single-band EQ section for each. The controls are deceptively basic, belying their power, but some of them eschew conventional naming, so a tour is in order.

The Early section is straightforward, with Size, Diffusion and Attenuation controls. Diffusion essentially alters the ‘shape’ of the reflective surfaces in the virtual room, with higher values causing the reverb tail to become smoother, while Attenuation determines the damping properties of the room's walls. Following this section comes the first of the two identical EQs, each a parametric affair with a Frequency dial (20Hz-22kHz), Gain (+/-24dB) and Bandwidth ranging from 0.5 to 4 octaves. It's slightly limited, but nonetheless fits Toraverb's ‘keep it simple’ ethos.

The Late section offers up the same three controls as the Early section, plus two more. These are a self-explanatory Bass Cut knob and a Feedback control, the latter determining how much energy is lost with each reflection. A handy Decay time value is shown next, based on the settings you've dialled in, and this is followed by the second EQ.

Finally, we get the mixer section, offering a balance control (X-Fader) between early and late reflections, a Predelay knob, a Modulation control for adding some movement to the reverb tail and, unusually, a gain control for the reverb section. This last control is in addition to the wet/dry balance control and is incredibly useful when trying to boost the levels of the



reverb without disturbing the dry signal (as merely using the dry/wet control would).

And that's about it, although we should also mention the handy Quality setting, offering four options. They range from the CPU-friendly Low quality (linear interpolation of delay lines), right up to the Highest setting (SINC32 interpolation).

Sounds like...

We've touched on all of the features, but what does this mean for the sound? Well, it's lush. There are no fancy options for switching from Hall to Plate to Plastic Jar – what you get is a really pleasing and potentially huge-sounding reverb. It's versatile too, for such a simple set of controls, working well on just about any type of material. It won't cover every base imaginable, so for getting that cavernous symphonic hall sound you might want to look at convolution reverb, for example. But what it gives you for the price makes Toraverb an absolute bargain. In fact, since installing it, it's featured in every track we've done. What higher praise can we offer?

Contact contact@d16.pl
Web www.d16.pl

System requirements

PC 2GHz CPU, 512MB RAM, Windows XP/2000/Vista

Mac 2GHz CPU, 512MB RAM, OS X 10.4

Alternatively

112dB Redline Reverb
cm144 >> 10/10 >> €149

Also has lovely, useful sounds – buy this one too, if you can

Audio Damage Eos
cm142 >> 9/10 >> \$49

Another bargain-priced 'verb with a superb sound. Decisions, decisions!

Behind the scenes

Almost all of the controls are on the front panel, but one or two features are tucked away. In particular, the preset management system, which is very detailed, allowing easy cataloguing of banks. The number of factory presets is slightly disappointing, but this is balanced by the ease of programming. Plus, the presets do cover the broader bases and provide a good starting point.

Also tucked away is the MIDI mapping section, which enables you to control the

parameters using a MIDI controller, and to save presets for different hardware. And as is standard, assigning parameters is as easy as selecting one and moving the controller that you want it tied to. So no surprises really, although we do love the ability to type preset names directly into the GUI readout – there's something satisfyingly retro about it! Once assigned, you can automate away, though we reckon Toraverb is usually best set up and left alone.

Verdict

For Beautiful sound

Slick SilverLine GUI

Very cheap; very easy to use

Gain function is a nice touch

User-definable Quality setting

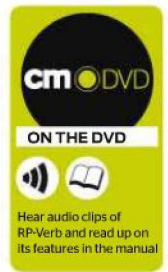
Against Not many presets

D16 Group deserve full marks for bringing us a reverb of such quality at such a ludicrously miniscule price

10/10

Rob Papen RP-Verb £129

PC MAC



Synth designer Rob Papen steps up to the plate with his first dedicated effects plug-in: a spaced-out reverb

> Renowned sound designer and soft synth developer Rob Papen isn't scared to stray from the beaten path, as he demonstrated with RG, his 'rhythm guitar synth'. And neither is his company lacking in the sound processing department, with synths like Predator blessed with a huge range of built-in effects. For this first strictly-effects effort, though, Papen and his coding cohort Jon Ayres have pulled out all the stops to deliver an ultra-modern reverb.

We won't run through RP-Verb's features 'in order', as the routing is quite versatile, but let's start by looking at the major sections of the interface. The core is, obviously, the Reverb panel, with Early- and Late-Reflection sections placed either side. All the controls you would expect are on offer, but with additional surprises, such as Side-Wise and Cross controls for early reflections, which affect the amount of signal 'bleed' between the left and right sides, to simulate different room properties.

For the Reverb section's Pre-Delay and Space controls, you also get Disorder controls, which are designed to affect the build-up of early reflections and manipulate the shape of the virtual space. It's suggested that these work best with Room reverb types, but they can be great for experimenting with. It's a little like having a room full of 'stuff' (as opposed to an empty one) and can give a more complex sound.

But the greatest creative potential comes from the inclusion of processing options that are quite unconventional for a reverb, such as input distortion and ensemble sections. Not only that, but the reverb's size, length and/or volume can be manipulated by an envelope that's triggered by the input signal, allowing for some serious sound-shaping. There's a three-band EQ, too.

Another plus point comes in the form of numerous routing options for the various signal paths and connections between the direct and affected signals. This alone is a hugely powerful way to alter the resulting sound.



One drawback, though, is that when changing a parameter, it can be quite disorienting to keep looking back and forth between the knob and the main display – a pop-up over the former would help here. It's also fair to say that RP-Verb often sounds decidedly 'digital', albeit in quite a pleasing manner. Clearly, this is something that's quite subjective and, indeed, it may be exactly what you're after.

Hidden strength

RP-Verb isn't your everyday utility reverb, then. Rather, its strength lies in its potential for creativity. There are more realistic and easier-to-use reverbs and, arguably, those that offer better value for money, but when it comes to making crazy noises and generating wild sweeps of enveloping sound, there's something about the way this plug-in's parameters and controls are set up that makes it an absolute joy to fiddle with, yielding all manner of crazily futuristic or delightfully distorted sounds.

If you're a serious sound designer who likes doing weird and wonderful things, you'll be able to get some unique textures and effects out of RP-Verb, and there aren't many parameters that don't respond well to real-time modulation. If you're not, you're probably better off opting for one of the many excellent simpler reverberation options on the market. **cm**

Web www.robpapen.com

Contact Time+Space, 01837 55200

System requirements

PC Windows XP/Vista 32/64, VST/RTAS host

Mac Intel/PPC CPU, OS X 10.4, VST/AU/RTAS host

Test system

Mac MacBook 2GHz Intel Core 2 Duo, 2GB RAM, OS X 10.5.6, Ableton Live 8

Mac Mac Pro dual 2.8GHz Quad-Core Intel Xeon, 4GB RAM, OS X 10.5.6

Alternatively

112dB Redline Reverb

cm144 >> 10/10 >> £149

Not a sound design juggernaut, but as good as 'regular' reverb gets

2CAudio Aether

cm140 >> 10/10 >> \$250

Stunning reverb that, like RP-Verb, offers insane creative potential

Verdict

For Awesomely powerful

Has a unique sound

Rewards real-time tweaks/automation

Clearly laid out

Huge selection of presets

Against Tricky to master

Not ideal for day-to-day use

RP-Verb is a sound design powerhouse, though it's not for the faint-hearted

9/10

Space exploration

We've can't stress enough RP-Verb's supreme potential for creating unique textures based on modulation. To add real-time modulation, you can draw in automation in your DAW or record your movements as you tweak the parameters. However, this isn't the most hands-on way to work and it's only possible to edit one parameter at a time using on-screen input. This is where MIDI control comes in.

Assigning controls to MIDI in RP-Verb is as

easy as right-clicking a MIDI parameter, selecting Latch To MIDI and moving the desired controller. The same menu is also used to unlatch MIDI controls.

Once you have these sorted, you can save your RP-Verb MIDI setup preferences as presets, which can be particularly handy if you have different controllers in use at different times. It also gives you the option to swap and download presets designed for specific bits of hardware.

Scan 3XS P55 liteDAW £1225



The PowerDAW's sprightly younger sibling bounces onto our test bench

> In **cm140**, the Intel Core i7-based 3XS PowerDAW system from Scan scooped a 9/10 score, and was declared the most powerful system we'd ever used. Now we have the pleasure of trying their 3XS P55 liteDAW, which is based on Intel's new, more affordable Socket 1156-based range. The base price of the system we have is £975, although our review model has some extras that have bumped up its price.

Outwardly, this system is more compact than the beastly PowerDAW, and aside from the slightly cheesy Cooler Master text, the black, aluminium case is stylish and understated. Round the front are two USB ports and an eSata slot, while 10 USB slots and two FireWire ports are hiding around the back. Inside, there's space for DSP cards, further hard drives, etc.

Audio-specific features include foam insulation, Prolima Megahelms CPU cooler, two 1TB Samsung hard drives (one partitioned for system and storage, the other for audio) in Scythe enclosures, four Sharkoon 'golf ball' fans, and OS tweaks to aid smooth performance.

Oh, do be quiet!

The system is impressively quiet – noticeably more so than the Rain Recording Element i7 (**cm137**, 8/10). We don't have the 3XS PowerDAW on our test bench any more to compare directly, but we think the liteDAW also beats that one on the noise front. Hard drive grinding can be a little noticeable, but this is likely exacerbated by the rest of the system being so stealthy.

There are a few CPUs that will work with the Socket 1156-based boards, but Scan reckon musos should skip the cheaper i5 chips and at least go for the Core i7 860, as these have Hyper Threading enabled, which makes a real difference for music software. The system we've

got has a four-core i7 860 chip, which the OS sees as an eight-core CPU, due to Hyper Threading.

The chip usually runs at 2.8GHz, but Scan ship the system overclocked by 20%, as they reckon the chips can be pushed hard without overheating and thus crashing the system. To put this to the test, we played a CPU-heavy production on a loop for an hour. Nothing happened, so we fired up Core Damage (an app that constantly maxes out all cores to 100%), and left it running for a couple of hours – the case got a little warmer than usual near the back, and the fans whirled harder to compensate, but that's all.

We were able to play about 100 simultaneous 24-bit WAV tracks in Cubase 5 without dropouts – the same as the PowerDAW. As for CPU power, see the boxout below.

This system came with a dual boot setup, with Windows 7 Premium 64-bit Home and XP Professional both installed – individually, these cost £80 and £95 extra, while the dual boot setup is £250 due to the extra configuration and testing. We were keen to try out Windows 7, and happily, we didn't run into any issues – all the software we tried worked fine, as did our Focusrite Saffire 6 USB interface. And we found system performance to be equal to that of XP.

Overall, this is a highly impressive system that takes the crown as the most flat-out powerful we've ever used, yet costs a fair bit less than previous contenders. Can't be bad! **cm**

Contact Scan, 0871 472 4747
Web 3xs.scan.co.uk



System Spec

PC Intel Core i7 860 (overclocked to 3.32GHz), 4GB DDR3 RAM, Gigabyte GA-P55-UD3 motherboard, Prolima Megahelms Cooler, 625W Enermax MODU82+ EMD625AWT PSU, 2x 1TB Samsung HD103UJ Spinpoint F1 hard drives, Sony Dual Layer DVD drive, AcoustiPack Ultimate kit, Lycom FireWire card (TI chipset), 4x120mm Sharkoon Golf Ball fans, Microsoft Windows XP Pro SP3, Windows 7 Home Premium 64-bit

Alternatively

Scan 3XS PowerDAW cm140 >> 9/10 >> £1680
Starts at £1375, but should be a little more future-proof

Rain Recording Element i7 cm137 >> 8/10 >> £2089
Base price is £1399 – our test model had an SSD drive and other goodies

Verdict

For Very quiet and stays cool
Powerful, overclocked i7 CPU
Stylish looks

Against Not much!

Another slick, powerful system from Scan, offering a good deal of bang for your buck

Core blimey!

We ran the same CPU-stressing tests on the 3XS P55 liteDAW as with previous i7 review systems. First up, we tried to run as many instances of 2CAudio Aether as possible (at 44.1kHz, maximum buffer size) with the Haunted Forest preset. On the 3XS PowerDAW, we'd managed 46 instances, but the liteDAW trounced it with 53. We tried a similar test with D16 Redoctor, with the default preset at Medium Quality: PowerDAW, 87 – LiteDAW, 101. And with the

Highest Quality mode, the liteDAW beat it 34-25. To be fair, if we'd overclocked the PowerDAW, too, it might've done equally well, but remember that we're testing the systems 'out of the box' here.

So, the liteDAW would seem to give you better performance for less cash. However, one advantage of the PowerDAW is that it's Socket 1366-based, meaning you should be able to upgrade it with a six-core chip when Intel bring them out next year.

cm mini reviews

A rapid-fire round-up of sample libraries, ROMplers and more

Native Instruments

Evolve Mutations \$119

Format Kontakt/Kontakt Player
Contact info@native-instruments.de
Web www.native-instruments.com

Heavycity's smash hit ROMpler Evolve (cm129, 10/10) is a sound design tour de force, and now it has a warped semi-sequel, Evolve Mutations. This all-new library is around a third the size (and price) of the original, offering 2GB of downloadable content in the Kontakt Player interface.

The 275 instruments are split into four categories, the first being Rhythmic Suites, offering 149 rhythms, also in mapped 'menu' format (thundering beats in the bottom octaves and crunchy toppings further up). There are also 41 loops offering riffs and rhythmic musical motifs, again, with menus too, which are addictive, immediately creative and great if you need to come up with parts in a hurry. In the Percussive Kits folder, you'll find five full kits; the varied sounds in the Deep Conga set and Grit Kit Slim had us knocking out ear-catching grooves right away. The 16 menus in Stings and Transitions offer disturbing, movie-esque evolving noises, while Tonality and FX is the place for weird pianos, brain-drilling synths, crazy (but playable) FX, and more of the fantastic treated guitar sounds that we loved so much in the original Evolve.

Thematically, Evolve Mutations follows in its forebear's dark, dramatic footsteps, but the overall sound is a touch



dirtier, with a gritty industrial edge, albeit tastefully done. The pack is ideal for sinister soundtracks, but pretty much anyone should find use in these superb, inspirational sounds, including owners of the original Evolve.

9/10

Western Digital

Scorpio Blue 640 £101

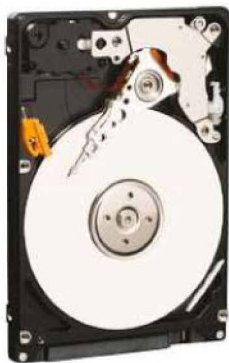
Format PC, Mac
Web www.westerndigital.com

At a whopping 640GB, the Scorpio Blue 640 is currently the highest capacity 2.5" hard drive available at the standard 9.5mm height still used by most laptop manufacturers, including Apple. It runs at 5400rpm, connects via 3GB/s SATA and actually comprises two 320GB platters, which has no bearing on the user experience - our tests revealed nothing untoward in terms of heat output or noise.

We fitted the 640 in a 2008 Unibody MacBook Pro, replacing the drive that it shipped with. Performance was impressive: the previous drive (a 320GB, 5400rpm Hitachi model) scored 36 (82.96 Sequential, 22.99 Random) in Xbench, which the 640 fair blew away with a significantly higher 51.24 (96.49 Sequential, 34.89 Random).

There are certainly no downsides to the Scorpio Blue 640 - it's huge, fast, quiet and cool and would make a superb upgrade to any music laptop. Despite spinning at 'only' 5400rpm, it can handle more than enough audio tracks for serious mobile production work; and with all that space on offer, even the most ravenous collector of ROMplers and sample libraries should have plenty of room for manoeuvre.

9/10



zplane.development

Elastique Pitch €349

Format RTAS
Contact via website
Web www.zplane.de

Elastique Pitch, from the makers of vielklang, is an RTAS plug-in for Mac and PC designed to pitch audio material up or down by up to one octave, whilst retaining its original timing and phase coherence.

Typical uses include mono instruments, speech and stereo mixes, although it can work on up to eight-channels of audio, and it's particularly useful for fixing pitch after frame rate conversions for film and video. The main parameters are Pitch and Timbre (for formant adjustment), which are linkable. When unlinked, the Timbre control can be used to focus on a specific frequency range.

In use, Elastique Pitch is incredibly responsive and sounds excellent. You can adjust the pitch in real time and even use a MIDI keyboard or pitch wheel. It's worth noting that the plug-in does introduce a noticeable amount of latency (we timed it at around 162ms at 48kHz). The interface itself is clear and enables direct parameter entry if you don't fancy the sliders - you can even switch skins (dark or light). To round things off, there's a pocket reference chart included, as well as a number of presets to cover typical film/video adjustments.



8/10

Sample Logic Morphestra £439

Format Kontakt/Kontakt Player
Contact Time+Space, 01837 55200
Web www.timespace.com

The latest sample-based instrument from Sample Logic follows the company's philosophy of blurring the line between music and sound design. Described as cinematic, the 1200 or so instruments cover all bases within that remit, including percussive impacts, transition effects, rhythmic loops and arpeggiated instruments, as well as atmospheres and pads. The sample set (designed in association with Kirk Hunter Studios) is sourced from orchestral and field recordings that have then been manipulated.

The content (27GB) is supplied pre-installed on a chunky Glyph pocket drive (USB2, FW800), and the instrument uses NI's Kontakt Player 3 (included) or can be loaded into Kontakt 3 or 4. The interface features five tabs – main, arp/gater, filter/EQ, reverb/delay and FX – giving you quick access to a multitude of parameters. The library is organised into three main categories – atmospheres, instrumentals and percussives –



with further sub-categories beyond.

Start with the atmospheres and you're instantly transported to any number of blockbuster soundtracks, with patch names often hinting at the inspiration. Many of the sounds combine pitched and non-pitched content, but they play across a good key range and evolve over time, typically following the host tempo. You'll find more traditional pads and strings in the instrumentals section, along with plenty of arpeggiated patches and melodic loops. But for us, the percussives section steals

the show, with its plethora of cinematic effects, sweeps and hits, plus great sequences and loops. Morphestra also has many multis, too, including contributions from Mark Isham and Rupert Gregson-Williams, amongst others.

Sample Logic's patches play convincingly across their key ranges and have excellent tweakability. No doubt professional music creators will accept the premium price tag, though others may consider it a little steep.

9/10

Vir2 Mojo Horn Section £349

Format Kontakt/Kontakt Player
Contact Time+Space, 01837 55200
Web www.timespace.com

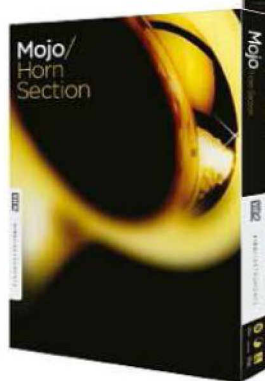
Brass instruments are notoriously difficult to synthesise, as anyone who remembers the honking monstrosities that tried to pass themselves off as horns in the early days of digital synths will be all too aware. Vir2's new Mojo Horn Section ROMpler solves this problem using 24-bit stereo samples of a wide variety of typical brass sounds (saxophones, trumpets, trombone and flugelhorn), and even throws in a clarinet for good measure. Mojo is a Kontakt Player instrument (running standalone or as a VST, AU, RTAS or DXi plug-in) and requires a considerable 16GB of free hard drive space for the full installation, showing just how extensive this sample library is.

In use, we found Mojo to be instantly impressive. Triggering the sounds with a controller keyboard produced very useable results, with the software calling up different samples according to note velocity, modulation and pitchbend information. Delving deeper into the settings, there are dozens of adjustable variables, such as note articulation, stereo mix,

tempo-synced crescendos, legato and trills, meaning that Mojo can create a huge variety of realistic sounds. To add to your options, you'll also find a basic integrated effects suite, which includes EQ, compression and reverb, among others.

Whether you're programming within your sequencer or playing live, Mojo sounds incredibly realistic. Many of the functions are controlled by MIDI CCs, but as a neat way of making things easier when using a keyboard, Mojo also dedicates a series of notes outside the instruments' pitch range to controlling a variety of its features.

A single instance of Kontakt Player can be set up as a Multi Rack with any combination of instruments from Mojo, meaning your virtual



horn section can be as big or small as you like. The Kontakt player engine means that stability is never in question, and CPU and RAM load are also dealt with very efficiently. Minimum system requirements are a modest 1.4GHz processor, 1GB of RAM and Windows XP SP2 or Vista 32-bit (OS X 10.4, G5 processor and 1GB RAM on Mac). Although it's expensive, there's no doubting that Mojo is one of the best horn instruments available. If you're in the market for brass sounds, you simply must check it out.

9/10

Soundware round-up

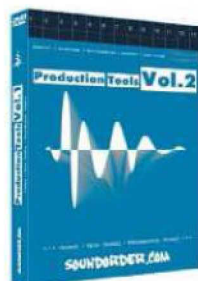
Soundorder.com

Production Tools Vol 2 £75

Contact Time+Space, 0183755200

Web www.timespace.com

Format WAV, Kontakt, REX, Apple Loops



This second title in Soundorder.com's Production Tools series continues where Vol 1 left off, and this time around, we're treated to 35 top-notch trance construction kits. You'll find a wide variety of different trance flavours, with content ranging from the tougher end of the spectrum right through to the outright commercial, via everything in between. Each kit is broken down into instruments and drum loops (with each of the latter split into its constituent hits), and every pattern is backed up with a MIDI file. The level of authenticity offered here is very high indeed and the sound quality is exceptional.

9/10

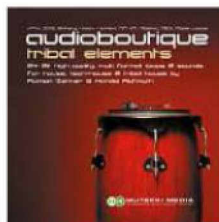
Mutekki Media

Audio Boutique Tribal Elements £85

Contact info@mutekki-media.de

Web www.mutekki-media.de

Format WAV, REX, Apple Loops, HALion, NN-XT, Live, Kontakt, EXS24, Battery



The Audio Boutique series continues with Tribal Elements, produced by Ramon Zenker and Harald Aufmuth. It comprises over 800 unique samples in total, most of which are top-quality loops, ready to drive and inspire your productions into the realms of the most contemporary Latin-house blends. If you're looking to add an organic and sophisticated South American essence, this library alone will likely provide you with that missing tribal touch for many tracks to come. As well as the obligatory percussive hits and loops, Zenker and Aufmuth have provided a selection of FX and Latin vocal samples, too.

10/10

Prime Loops DOWNLOAD

Planet Of The Orchestra £17

Web www.primeloops.com

Format WAV, ACID, Apple Loops, Akai MPC, Ableton Live Pack, FL Studio, GarageBand, Roland Fantom X, Roland MC-909, Roland MV-8000, Roland MV-8800



Planet Of The Orchestra comprises 111 unique loops, encompassing diverse orchestral elements from all around the globe. They blend exotic and eclectic flavours into busy musical textures, using instruments from the Asian, African and European continents. Every loop is labelled with a key signature and tempo for easy use. However, many of the loops are particularly short and not all of them cycle back to the start smoothly. On the bright side, the sound quality is superb, and for the price, you're certainly getting some bang for your buck.

8/10

Clickproduce

Simplosive Electro Bass £21

Contact Clickproduce, 020 8780 0612

Web www.clickproduce.com

Format WAV



Clickproduce have packaged a 300-strong collection of one-shot bass samples, each of which is specifically designed for the production of electro house and its related genres. However, the current electro influence on the broader music scene means you might equally find these samples just as valid in the production of hip-hop or DnB, for example. All the samples are well recorded and have been tuned to the note of C (although they're not all in the same octave) for easy auditioning and loading into your sampler of choice. There are some interesting sounds here, but you may have to do a little mix work to get them to fit into your production.

7/10

Acoustic Samples DOWNLOAD **DrumTaste Jazz** £40

Contact contact@acousticsamples.com
Web www.acousticsamples.com
Format Kontakt 2/3, AIFF, SFZ

DrumTaste Jazz is a virtual drum kit, comprising 1818 24-bit/48kHz samples of a Sonor Jazz setup. The instrument has been carefully programmed to be as realistic as possible and includes four round-robin alternates for snares, hi-hats and rides, two for other elements, plus five hi-hat openness settings controllable via MIDI CC. On a performance tip, there are mapping presets for GM, V-Drums, IMAP and nskit (NDK), and 100 MIDI loops that were created using V-Drums. Sonically, the set sounds fantastic, with the Kontakt interface delivering a good balance between spot mics and overheads, and easy access to mapping settings. A DVD version is also available.

9/10



FatLoud DOWNLOAD **Flow – Pure Urban Construction Kits** £30

Contact support2@soundstosample.com
Web www.soundstosample.com
Format Acidized WAV, WAV, Apple Loops, REX, Reason 4 ReFill

Flow follows on from FatLoud's original Hip Hop Construction Kit, getting deeper into the hip-hop and R&B sound. Here we have 20 construction kits ranging from 87bpm to 100bpm in one- to four-bar loops. Kits are broken down into roughly 20 loops, along with 200 labelled drum hits – the latter provide a useful sample expansion pack if you're after more sounds. However, this pack's real value lies in the drum beats and musical loops, such as piano, clav, organ and strings, all of which provide instant inspiration for the creation of new tunes.

8/10

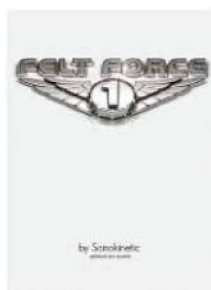


Sonokinetic DOWNLOAD **Felt Force One** €25

Contact info@sonokinetic.com
Web www.sonokinetic.com
Format Kontakt 2/3, Apple Loops, WAV

Felt Force One is an orchestral percussion sample set from Dutch sound designer Rob Vandenberg. Featuring non-tuned percussion exclusively, we're talking kicks, toms, snares drums and metals (gong, suspended cymbal and anvil), with the emphasis very much on dramatic impact. Although there are four one-shot kits, it's the 11 construction kits covering tempos from 100-170bpm that really impress. Constructed from 4-, 8- and 16-bar phrases performed live by a six-man percussion section, you've got instant movie soundtrack flavour. Overall, the set is sonically very consistent, but be aware that all sounds and loops are recorded with reverb.

8/10



Soniccuture DOWNLOAD **The Skiddaw Stones** £49

Contact customerservices@soniccuture.com
Web www.soniccuture.com
Format Kontakt 2/3, EXS24, Ableton Live

The Skiddaw Stones are a set of hand-carved hornfels stones put together in the mid-19th century to form a 61-note lithophone. Keswick Museum let Soniccuture sample this unique instrument, producing a 2.5GB sample set played with rubber and wooden mallets, and also a set of scrapes. The instrument sounds best in the mid to upper range, producing a sound more haunting and resonant than a marimba, and the scrapes add an extra dimension to the package. However, the hand-tooled nature of the stones means that there's noticeable timbral variation from note to note, and ultimately we found it sounded best with reverb. The DVD version is £59.

8/10



Nova Loops DOWNLOAD **Timbo's Club Joints Volume 1** £20

Contact Producer Loops, 0845 094 3077
Web www.producerloops.com
Format WAV, Apple Loops, REX

Cheekily taking its lead from hip-hop beatmeister Timbaland, Timbo's Club Joints Vol 1 features 15 construction kits in loop format. Tempos include half-time kits (at around 60bpm) as well as more up-tempo stuff right up to 133bpm. Kits include those currently popular Euro synth sounds and a host of tough beats, typically in four-bar loops. Overall, it's the beats that win out in this set, but the synths and musical sounds are variable, and although they sometimes hit the mark, elsewhere they fail to deliver the crispness, character or individuality of the man himself.

7/10



Puremagnetik DOWNLOAD **Waveframe** \$12

Contact info@puremagnetik.com
Web www.puremagnetik.com
Format Ableton Live 7/8 Micropak

The latest Micropak from Puremagnetik uses the Ableton Live environment to build a wavetable synthesiser much like Ensoniq's Fizmo. In the process, it makes full use of Live's internal effects to deliver a set of 32 presets, ranging from basses and arps to pads, leads and keyboards. However, the real boon here is the option to build your own patches using two- or four-voice templates, like the Fizmo. Combine these with your choice of the 36 waveform devices, as well as Live's own effects and modulations, and you'll be building highly individual, evolving sounds in next to no time. Overall, Waveframe provides an excellent, flexible representation of an esoteric classic.

9/10



cm/recommends

The best new gear from the last three issues...



112dB **€149** PC/MAC
Redline Equalizer

Rating **10/10**
Reviewed **cm145**
Contact info@112db.com
Web www.112db.com

What is it? Probably the most feature-packed EQ plug-in we've ever come across, Redline Equalizer offers selectable bell curves (including, digital, tube and console-modeled ones), a spectrum analyser, harmonic distortion, dynamic EQ, automatic gain compensation and adjustable phase, ranging from linear phase to analogue-style phase... and beyond!

Verdict "Redline Equalizer is a well thought out EQ with a unique and comprehensive feature set, and a great sound"



Apple MAC
Logic Pro 9 **£399**

Rating **10/10**
Reviewed **cm143**
Contact Apple UK, 0800 0480 408
Web www.apple.com

What is it? An update to Apple's ever-popular Mac-only DAW, this one took us by surprise, as it arrived entirely unannounced. Logic Pro 9 remains part of the Logic Studio bundle, and highlights include enhanced audio editing functions, all-new virtual guitar amps and effects, plus Flex Time, which enables you to warp audio as you see fit.

Verdict "Logic Studio remains fantastic and feature-stuffed, and Logic Pro 9 is perhaps the best all-round DAW"



Novation PC/MAC
LaunchPad **£150**

Rating **10/10**
Reviewed **cm145**
Contact Novation, 01494 462246
Web www.novationmusic.com

What is it? On the surface, it's a dedicated controller for Ableton Live, offering an enhanced take on the clip-launching section of the Akai APC40. But as well as this most obvious functionality, it can also control Live's mixer, not to mention interact with pretty much *anything* using Novation's crafty Automap software. It's also affordable, portable and solidly built. Nice!

Verdict "An excellent effort from Novation here, and one that will surely make Live complete for a good many users"

What we've been using this month



Ronan Macdonald
Editor

I honestly didn't think samplers could get any better than Kontakt 3, but Kontakt 4 has proven me wrong. Wouldn't be much of an upgrade if it hadn't, though, would it?



Lee du-Caine
Deputy Editor

If 112dB's Redline Equalizer was a TV hard-man, it'd be a silver-haired English gent cruising around in a black Jaguar and punishing foolhardy criminals. That's right: I reckon it's *the* equaliser!



Tim Cant
Multimedia Editor

I've been using ValhallaFreqEcho constantly. If I die while tweaking the delay time parameter, I'll spend the afterlife in Asgard, where I'll finally have time to perfect my Thor patches.



Craig Hitchings
Production Assistant

I've been using iZotope's Alloy channel strip, which has really helped me to fuse track elements and solidify my mixes, especially when combined with the company's Ozone mastering software.

>Your questions answered

Q&A

Got some cash to splash on new gear but don't know where to look? Running into problems with your current setup? Or would you like some help in making a certain sound? Send your questions to cmhelp@futurenet.co.uk

More input needed

Question My audio interface is an M-Audio Mbox 2, which has one stereo input. I'm looking for a piece of hardware that will allow me to select between a small bank of inputs (about three) to play through to the Mbox for recording. Ideally, I'd like it to allow for the option of sending a signal through an FX unit loop, then into the Mbox as well. Can you tell me if this is possible, or do I simply need to get a new interface?

Ryan Houck

Answer The most convenient solution to your problem would be to invest in a cheap mixer. This would enable you to record multiple inputs, as well as set up effect loops, with the added bonus of being more wallet-friendly than buying a new interface.

The Behringer Xenyx 1002 (www.behringer.com/EN/Products/1002.aspx), for example, has four pairs of balanced/unbalanced 1/4" jack inputs, two RCA inputs, and two combi jack/XLR inputs with preamps. The mixer also has a send output,

which you can use to create an FX chain. This can then be routed back into the mixer.

The Xenyx 1002 has an online price of about £65, and while more expensive mixers may have more features and better quality inputs and outputs, you should still get good results with this handy and well-priced bit of kit.

What are my rights?

Question I've written some electronic dance music tracks and am having a website made for my band. I'll be putting tracks on it for users to download for free and setting up an online shop, too. What are my options for protecting the copyright of my material before I add the tracks to the site?

Greg Mitchinson

Answer Under UK intellectual copyright law, you own the copyright in the work as soon as it's created. As such, your best protection is to keep copies of your project files safe. In the event of unauthorised use of your work, these can be used as evidence that you created it. To be extra

safe, it's possible to register your work with a copyright registration service such as the UKCS. That's the United Kingdom Copyright Service - not to be confused with the United Kingdom Continenence Society. To register your work, or for more information, visit www.copyrightservice.co.uk.

Realistically, the chances that your music will be stolen and passed off as someone else's work are pretty small, so we'd suggest that forking out to register your songs in this way probably wouldn't be worth the outlay. But for peace of mind, there are other, cheaper ways you can protect yourself - for example, by playing the songs to friends or family so that they can act as witnesses in court. Another common tip is to post a copy of your work to yourself via Special Delivery, which dates it, remembering not to open it when it arrives. This isn't the most solid evidence, though, as it would be quite easy to fake - you could have simply steamed open the envelope of another Special Delivery package and replaced the contents. A better idea is to give a copy of your work to your bank or a solicitor, who should be able to look after it for you and will make for a useful witness should the worst ever come to the worst.

Don't listen

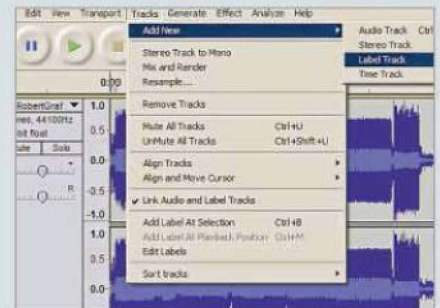
Question In cm141's *All change* feature on p53, about building transitions, I was interested to read that you advise not to listen to complete tracks over and over again.



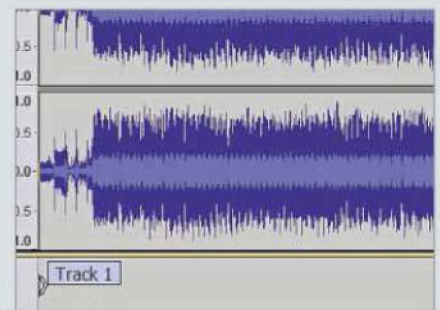
If you're looking to add some external inputs to your interface, a cheap mixer such as the Behringer Xenyx 1002 is a good option

> Step by step

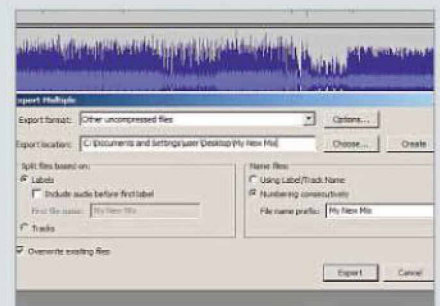
Splitting a track with labels in Audacity



- 1 > Load up Audacity and drag your WAV format mix into the sample editor's interface. To mark out the different tracks we need a Label Track. To create this, select **Tracks>Add New>Label Track**. The Label Track will appear underneath the audio waveform of your mix.



- 2 > Place the cursor at the start of the mix and press **Ctrl/Cmnd+B**. This creates a new label, complete with a text field ready to edit. Give it the title **Track 1**, or just leave the text field blank. Next, add another label at the start of the second track.



- 3 > Keep going until you've labelled all the tracks in your mix. Once you're done, select **File>Export Multiple** to bring up the Export dialog. If you've named the labels you're good to go, otherwise you'll need to select **Numbering consecutively** in the **Name files** panel. Click **Export** and Audacity will export the individual files.

As far as controllers for Live go, you'd struggle to find anything better than the Akai APC40



I'm still new to music production and find myself doing this all the time, but could you please explain to me why I shouldn't listen to my tracks repeatedly?

Shaun Wallis

Answer Repeatedly reviewing your entire track during its creation can actually be a barrier to progress. If you listen through too much, you'll not only fatigue your ears but also your brain; hearing the same thing repeatedly can make you numb to your mistakes and immune to your triumphs. If you want a quick antidote, try sticking your track through a mastering chain and A/Bing it with another in the same genre. This will highlight any errors, which you can then take steps to correct.

Mark your tracks

Question I've recorded one of my DJ mixes into Audacity, but I don't want to burn the mix as one long track. How can I put track markers into the audio file using Audacity, so that each track is separate?

Ron Guillemette

Answer It's not possible to embed cue markers into an audio file using Audacity, although it is possible to use the software's labels and **Export Multiple** function to automatically export each track as a separate audio file. These can then be burned to a CD with 0 seconds' silence in-between each track. This will ensure you get a gap-free mix, with the advantage of being able to skip to any specific track. For a closer look at how this feature works, have a read of the *Splitting a track with labels in Audacity* walkthrough, right.

DJ controller

Question I've recently started using Ableton Live for production, and I've also dabbled in using it as a DJ tool. It seems to be amazing, but obviously using a mouse and keyboard isn't ideal for live performance. I'd like to buy a DJ controller with faders for levels, a crossfader and, preferably, some buttons for launching clips. Size is a factor because I'd like to be able to take it out with my laptop. What would you recommend?

Matthew Rahman

Answer When it comes to picking a DJ-style controller for Ableton Live, you're spoilt for choice these days. Live will work with any MIDI controller, but if money is no object then the Akai APC40 is the bee's knees. This beast was developed in conjunction with Ableton and is pretty much the Rolls-Royce of Live controllers, with tons of faders, buttons, knobs and that all-important crossfader. The catch is that it costs a pretty penny (the UK RRP is £379), and it's quite big, with a footprint of 16.88"x3.13".

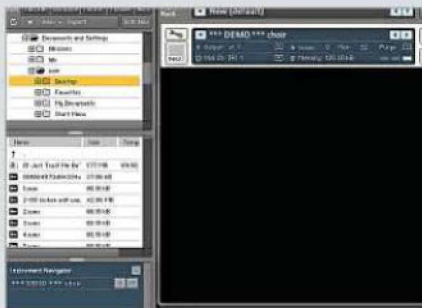
If this is a little on the large and expensive side, there are plenty of other options, including the Novation Nocturn, which retails at a much more wallet-friendly £70. This gets you 16 buttons, nine faders and a crossfader. It's pretty petite at 9.41"x5.39", though the lack of regular faders might be a deal-breaker for you.

Otherwise, a less sophisticated-looking but highly practical option is the M-Audio X-Session Pro, which has an RRP of £79. This features plenty of knobs and faders, as well as a crossfader, in a relatively small package, and offers a good compromise between usability and portability.

"If you listen through too much, you'll not only fatigue your ears but also your brain; hearing the same thing repeatedly can make you numb to your mistakes"

> Step by step

Crossfade looping in Kontakt



- 1 > Begin by locating a sustained sample that you'd like to loop indefinitely. Conveniently, you'll find an appropriate sample (**Choir.wav**) in the **Tutorial Files/Q&A** folder on the **cm** DVD. Drag this onto your hard drive, then load Kontakt in your DAW of choice. Drag **Choir.wav** into Kontakt's interface to create a new instrument.



- 2 > Open the Instrument Editor by clicking the spanner icon, and bring up the Wave Editor by clicking the **Wave Editor** button. Here you'll see the graphical representation of the sample's waveform. Using the right mouse button, drag over the region from 1.5 to 3 seconds - you don't have to be exact. This automatically activates Kontakt's Loop mode.



- 3 > When you play the sample back you'll hear it click upon looping. To remedy this, turn the **X-Fade** value up to around **30,000**. Now you'll hear the sample loop smoothly. You can activate Akai-style ping-pong looping by changing the **Loop** mode from **Until End** to **Until End <->**, but this deactivates the crossfade and will result in a more obvious loop.



The MacBook Pro offers plenty of portable power but it's not cheap, starting at £899. If you're on a tighter budget, PC laptops may be a better option and have just as much oomph

Ping-pong looping

Question In the Spor remix of *Messiah* by Conflict, there's a sustained vocal that seems to go on forever. A friend of mine said that this is an old Akai sampler trick, but couldn't give me any more details. Are you able to fill me in further on what he might mean?

Robert Hennessy

Answer It's likely that your friend is referring to the old Akai 'ping-pong' looping effect, where the looped section of the sample plays forwards then backwards repeatedly, which can help to create a more natural looping effect. However, in the case of the *Messiah* vocal, this is more likely to be a crossfade looping effect. To see how this can be done using Native Instruments' popular soft sampler Kontakt, take a look at the *Crossfade looping in Kontakt* walkthrough, left.

Recreate the bass

Question How do I create a bass sound similar to the one used by Vangelis in *Spotkanie Z Matka* from the *Blade Runner Trilogy*, 25th Anniversary album, using Native Instruments Massive?

Tony Estrada

Answer The bass sound from *Spotkanie Z Matka* is actually a fretless bass guitar, which isn't something that can be synthesised particularly easily. If you don't want to spend

any money and really would rather use Native Instruments Massive, we recommend using the **Saft** preset with the cutoff of the first filter turned down. For a more sustained sound, try turning up the **Decay Level** knobs of envelopes 1, 2 and 4. Also, you could apply a little vibrato to provide added expression.

If you want to get a more realistic bass guitar sound, however, you have plenty of options. The Korg M1 synth from the 80s had a particularly pleasant fretless bass patch, and a digital version of this keyboard is available as part of the Korg Legacy Collection Digital Edition, which you can pick up for £120.

If you're after something a little more involved, we suggest giving ManyTone Fretless bass a try. This is a dedicated fretless bass patch and will set you back \$59.95. This price only includes the patch, though, and you'll need either NI Kontakt, Cakewalk Dimension, a SoundFont player, or one of ManyTone's sample-playback instruments to use it.

Mac or PC?

Question I'm definitely going to buy a new music computer but I'm not sure if I should get a desktop or a laptop. Being able to take the computer when I go out and about would be convenient, but it's not a massive problem if I can't. Also, I'm not sure whether I should get a Mac or PC. I've been using Cubase on a PC for years but I'd quite like to give Logic a go. I don't mind investing a bit in a new hardware and software setup, but I don't

"The bass sound from *Spotkanie Z Matka* is a fretless bass guitar, which isn't something that can be synthesised easily"

want to spend money for the sake of it. Do you have any suggestions?

Jacob Clarke

Answer There are many factors to take into account when deciding between buying a desktop or laptop computer. The most important is that you'll pay more for a laptop with the same specs as a comparable desktop, and even then you're unlikely to get quite the same level of performance.

On the other hand, these days computers are so powerful that a decent-spec laptop will probably have enough memory and CPU power for your projects: **cm144's** *Producer Masterclass* subjects Matrix & Futurebound used a MacBook Pro to create their stunning remix of Agent X's *Falling*. This was a pretty complex project, although it should be noted that some of the plug-ins they used were running off an external Universal Audio UAD DSP card. Of course, a

MacBook Pro isn't a particularly cheap solution, with prices ranging from £899 for the 13" model to £1849 for the 17" model. Desktop iMacs start at £949, so they're not exactly bargain basement prices, either.

As for PCs, you can pick up a notebook with an Intel Core 2 Duo processor and 4GB of RAM for under £500. This may well be powerful enough for your projects, depending on their complexity. If you're running large numbers of heavyweight synths, ROMplers or effects, then you can get your hands on a quad-core desktop machine for that kind of cash. If you intend to work on seriously heavy-duty projects and aren't excessively worried about portability, then we'd definitely recommend a desktop machine, but a laptop should be fine for less demanding work - indeed, in this issue's *Producer Masterclass* you'll see Phonat uses a plain old MacBook running Windows XP!

As to whether you should switch to Logic, this

will only be possible if you go down the Mac route. Logic arguably has superior plug-ins to Cubase, but if you already have a plug-in library you're happy with then you're probably best off sticking with a PC and Cubase, thus saving yourself some cash.

Check in mono

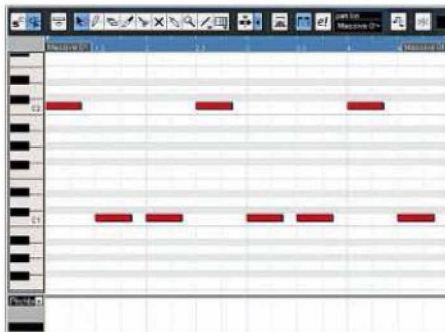
Question I've heard that it's best to check your mixes in mono because some club and lo-fi sound reproduction systems sum everything to mono, which can cause phase problems. I know some hardware features a button to make the audio signal mono, but is there a way to do this in software?

Toby Butler

Answer Most DAWs feature a plug-in that enables you to check your mixes in mono. For

Question How do I create a Showtek-style synth sound?

Dan Morrow



1 > To create the kind of dirty lead sounds used by Showtek, we're going to use Native Instruments' Massive and start with a simple MIDI pattern playing the default patch, which is a simple sawtooth sound. Distortion is a big part of this sound and, as Massive doesn't display exact values for its controllers, you may have to do some delicate fine-tuning.



2 > Let's start by selecting something a little dirtier than the standard sawtooth wave. Select the **Drive1** wavetable from the **Analog/Electric** menu and set the **Wt-position** to about 2 o'clock. This will give us a slightly rougher sound. Route its output so that it's set fully to filter 1.



3 > Next, activate Filter 1 and set it to **Scream** mode. This is a low-pass filter, but it includes the **Scream** control, which enables us add some nasty feedback. Set the **Scream** knob to just before 12 o'clock and the **Resonance** knob to just past 3 o'clock. Open the cutoff fully.



4 > We can add even more feedback using Massive's dedicated Feedback panel. Set the **Amp** level to between 12 and one o'clock, as we have here. It's possible to change the routing of the feedback with the routing page in Massive's centre window, but we're going to leave it where it is for this sound.



5 > Not enough distortion for you yet? Let's add some more using the first of Massive's effects. Set **FX1** to **Brauner Tube** and leave the **Wet/Dry** control at 12 o'clock. Set the drive level to between one and two o'clock.



6 > For the final touch, set the **Release** time of the amplitude envelope (by default **4 Env**) to taste. Note that the length of the notes you use will have a particularly big impact on the sound because of all the distortion going on. You can find our finished **Showtek.ksd** patch in the **Tutorial Files/Q&A** folder on the **cm DVD**.



Before playing your new mix at a club session, check it in mono using a plug-in like dfx monomaker

example, Cubase's spatial effects have **Mono** buttons, and Live's Utility effect has a **Width** control that can be set to 0%. If you can't find one in your DAW, then you can use dfx monomaker, which can be downloaded from Destroy FX (destroyfx.smartelectronix.com/extras). Simply put one of these effects on your master, set it to mono and there you have it - a mono-ised mix. Just don't forget to bypass it when you want to listen to your mix again in stereo.

Moving on

Question I mainly use ACID, but I get a sense I could be doing more than just sequencing loops with it. I'm sure it has capabilities beyond what I use it for - I've not even touched VSTs, for example. I'm wary of

starting with a completely new product because cost is an issue. Even the free software I've tried from your DVD has proved pretty difficult for me to understand, as have demo versions of programs such as Reason.

Mike Wolf

Answer If you're already comfortable with ACID and want to start using virtual instruments there's little reason to switch to another host. ACID has decent MIDI sequencing capabilities, and it's certainly a capable program with high-profile users, including Rusko and Trentemøller. You won't even have to invest in extra plug-ins, as you'll find dozens of awesome, exclusive VST instruments on the **cm** DVD in the **CM Studio** folder, which will help you get started. See *Using virtual instruments in ACID Pro*, right, for a step by step guide to installing and using these powerful plug-ins.

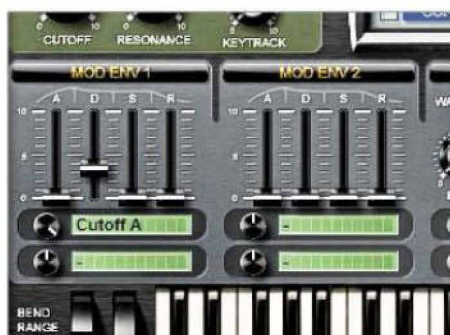
Question How do I make a bass sound like the one used in *Do You Like Bass 2009* by Felguk? Jay Pullano



1 > The track *Do You Like Bass 2009* has a lot of crazy synth sounds going on, but the main bass sound is actually pretty simple. You'll need a virtual analogue soft synth. We're going to use Sylenth1 - load it and select the **Init** preset. Start by setting the first oscillator to a square shape.

2 > Activate the second oscillator by setting its **Voices** to **1**, and switch it to a square wave too. Set **Note** to **7**, which gives us an interval of a fifth. This leaves us with a basic, raw sound that we can shape with Sylenth1's filter to get the kind of bass we desire.

3 > To activate Filter A, set its **Filter Type** to **Low Pass**. We want to use the first modulation envelope to control the frequency of the filter cutoff. To hear the affect of this modulation, we need to turn the filter **Cutoff** knob all the way down, otherwise the filter will be fully open the whole time.

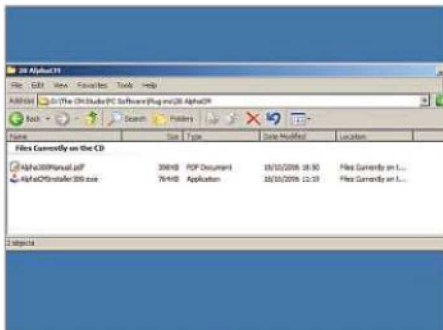


4 > Set the modulation destination of the first envelope to **Cutoff A** and its modulation amount to full. This tells the envelope to modulate the filter cutoff level. Set the **Decay** of the envelope to **3.39**. You can adjust this time depending on how short and sharp you want the bass sound to be.

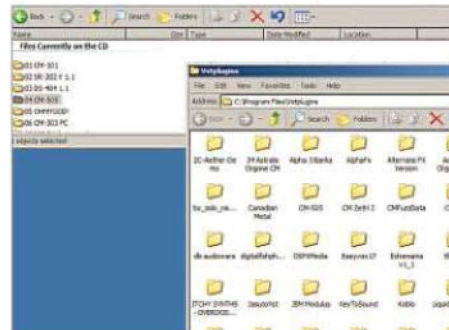
5 > For a less abrupt feel, you can also turn up the **Sustain** level. Once you've finished fine-tuning your filter envelope, try changing the wave shape of the second oscillator to get a variety of different timbres.

6 > If that's not quite bassy enough for you, switch to **Part B** and activate Oscillator B1 by setting its **Voices** to **1**. Change the wave shape to sine and turn **Octave** down to **-1**. To route this oscillator through Filter A instead of B, set Filter B's **Input Select** to **--** and Filter A's **Input Select** to **AB**.

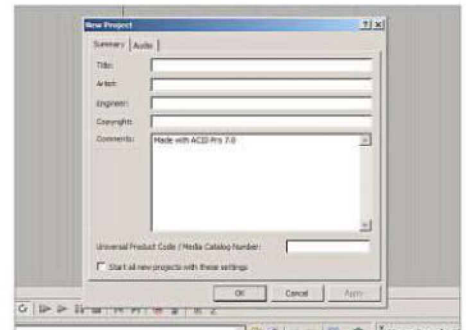
> Step by step Using virtual instruments in ACID Pro



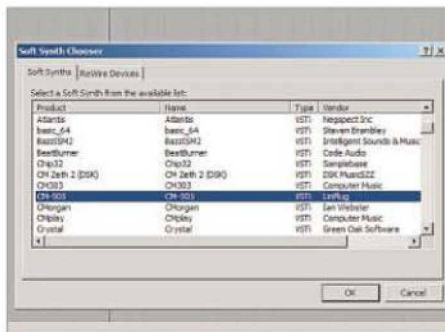
1 > Let's create a simple piece of music using just virtual instruments in ACID Pro. Start by installing some virtual instruments. On the DVD, open the folder **The CM Studio/PC Software/Plug-ins**. There you'll find dozens of VST plug-ins. Open **20 AlphaCM** and run the installer.



2 > Follow the prompts to install the software. AlphaCM should automatically attempt to install itself in the folder **C:\Program Files\Vstplugins**, which is where ACID Pro looks for VST plug-ins. Some plug-ins have to be installed manually: when the installer has finished, go back to the **Plug-ins** folder and copy **04 CM-505** to **C:\Program Files\Vstplugins**.



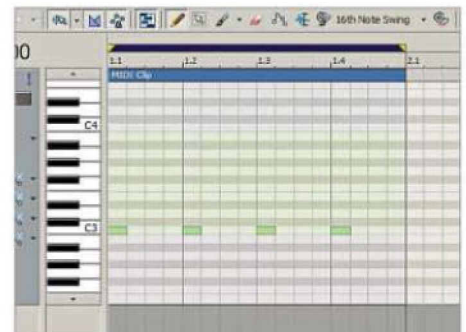
3 > We've now installed AlphaCM and CM-505. AlphaCM is a virtual analogue synth, which is great for making big, bad electronic sounds and CM-505 is a drum machine ideal for electro beats. Load up ACID Pro and select **File>New...** Click **OK** in the window that appears to create a new project.



4 > Right-click the track list and select **Insert MIDI Track**. To select a virtual instrument, click the piano icon with a number below it. Select **Insert Soft Synth...** from the menu and a dialog will appear showing all the plug-ins available to you. Select **CM-505** and click **OK**. The instrument's interface will appear.



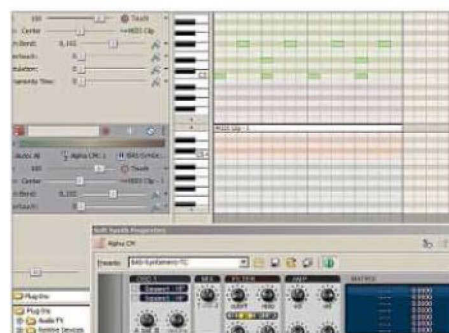
5 > Next we need to draw a MIDI clip on the MIDI track. This works in the same way as drawing in audio - simply hold down the mouse button and drag over the first bar. Double-click the clip, which will set the loop region to encompass it - handy for when we're editing the MIDI part. Right-click the clip and select **Enable Inline MIDI editing**.



6 > This brings up the MIDI editor. Again, if you're used to audio this might look a little intimidating, but it's actually pretty simple. Use the down arrow to scroll down the keyboard until you can see note C3. As CM-505 is a drum machine, the various keys play different drum sounds. Draw in a note on C3 on each beat like so.



7 > Activate loop playback by clicking the **Loop** button, and play back what we've got so far. You should hear a simple kick drum rhythm emanating from your speakers. Let's spice it up using some of CM-505's other sounds. Copy the pattern we've used here to add an off-beat hat and a clap on every other beat.



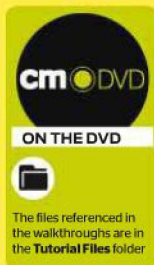
8 > Let's add another MIDI track and soft synth, this time AlphaCM. The currently selected AlphaCM preset at the top left-hand corner of the interface is set by default to **BAS-Backwards-TC**. Select **BAS-SynGeneric-TC** and create a new MIDI clip by dragging one in at the top of the inline editor for the second track.



9 > Copy the part we've used here to create a bouncy bassline. We can adjust the sound of the synth using the parameters on the interface. Turn down the **Decay** knob in the Filter section to get a tighter sound. You can export your instrument tracks as audio using the **File>Render As** function. **cm**

BREAKBEATS

Producers in many genres chop up old-skool beats and process them into funky fresh rhythms – here's how (and why) they do it...



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> Since the inventions of turntablism and the sampler, the solo drum break has been an object of desire for dance musicians. Originally the preserve of the hip-hop scene, tracks such as Mantronix's *The King of the Beats* demonstrated how the creative manipulation of sampled drums could result in amazing beats.

The technique became an integral part of the early 90s UK hardcore sound, too, which eventually developed into such breakbeat-heavy styles as jungle, breakcore and DnB. Breakbeats were by no means ignored by the mainstream either, with cheesy chart-toppers such as Enigma's *Return to Innocence* and Victoria Beckham ft. Dane Bowers and Truesteppers' *Out of Your Mind* using Led Zeppelin's *When the Levee Breaks* and The Winstons' *Amen Brother* respectively.

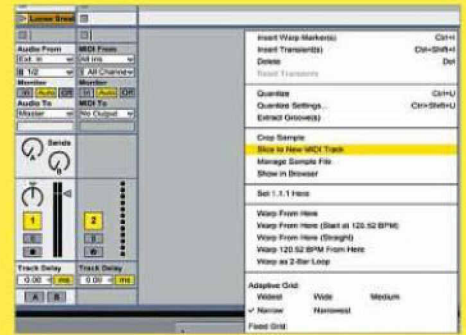
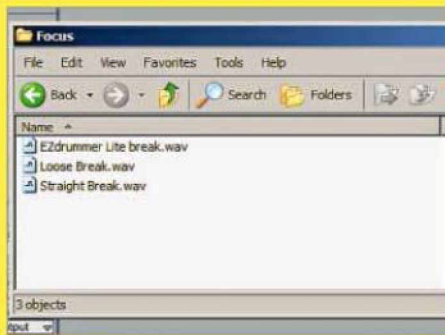
Today, software gives us the power to capture and manipulate drum breaks with ease, but in the 80s and early 90s, breakbeat slicing and programming was a chore. Even if you were lucky enough to own a sampler with a waveform display, slicing a beat into its constituent hits took time. Once it had been chopped up, you'd have to recreate the timing

"Once your break has been cut, there are still plenty of things you can do to make it a better fit"

yourself if you intended to keep the original groove. Thankfully in the mid-90s, Propellerhead entered the scene with ReCycle, which could not only automatically detect the start of each drum hit and slice the sample accordingly, but also export MIDI timing information, enabling breaks to be used much more effectively.

Nowadays, almost all DAWs feature some kind of automatic beat-slicing, but they're not always foolproof, and once your break has been cut, there are still plenty of things you can do in order to make it a better fit for your track. In this month's *cm Focus*, we'll show you the best ways to cut up and process drum loops in Ableton Live; create new grooves using straightforward sampling and sequencing techniques; demonstrate how to create authentic-sounding vintage breaks using software plug-ins; and take a look at where you can get your hands on some classic breaks.

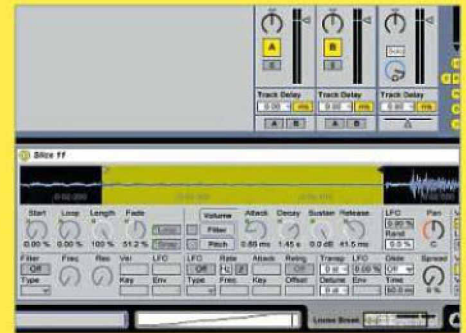
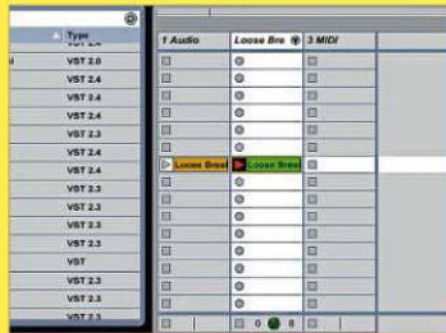
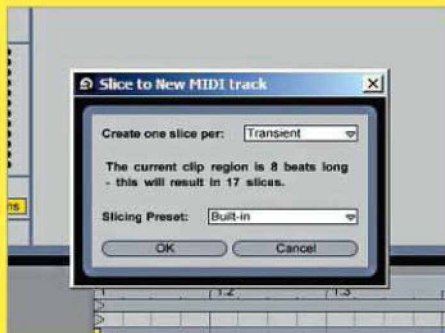
> Step by step Basic breakbeat slicing in Ableton Live



1 > Ableton Live 8 is arguably the best software for working with breakbeats. Let's take a look at some of its convenient features. If you don't have it, download the demo from www.ableton.com. Copy the **Tutorial Files/Focus** folder from the DVD to your hard drive and launch Live 8.

2 > Drag **Loose Break.wav** onto the audio track. Double-click the clip that's created and its info and waveform will appear at the bottom of the screen. Note that the transients don't line up perfectly with the grid shown behind the waveform. This is because the beat isn't played perfectly in time - it's got some groove!

3 > Live really spoils us for choice when it comes to slicing and dicing this break. Let's use the easiest method first. Right-click the waveform or the clip in the Session window, and select **Slice to New MIDI Track**. You'll be presented with a window in which you can pick how Live will chop the beat.

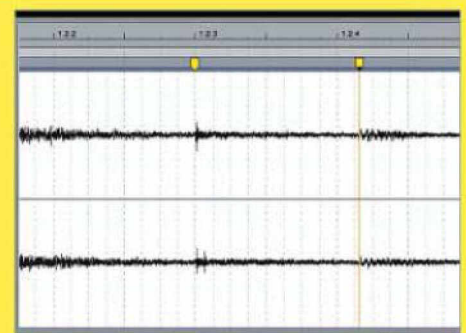
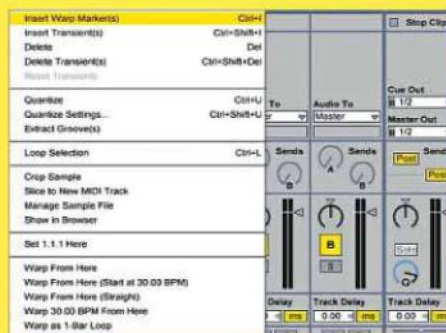
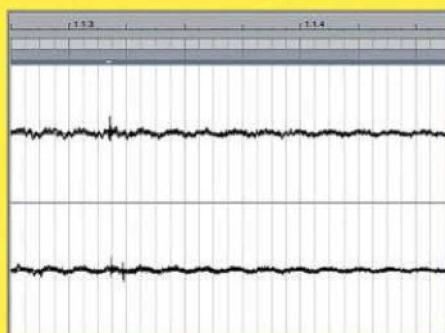


4 > We want Live to automatically detect each beat, so set the first option to **Transient** and leave the slicing preset as **Built-in**. Click **OK** and Live will slice the beat up and create a new MIDI track hosting a Live Rack full of Simpler instruments (one for each slice). The project tempo is also automatically set to that of the beat.

5 > Mute the original audio track and play back the MIDI clip. Since it's playing at its original tempo, the slices could be all over the shop and we wouldn't hear it. To get a better idea of where the slices are, slow Live's tempo down to **30BPM**.

6 > Live hasn't done a bad job - it's got excellent beat detection, after all - but you can hear that slices 4, 8, 11 and 17 all include more than one hit. If you're not worried about losing these hits, you can simply move the end points of the slices so that each one ends after the initial hit.

> Step by step Advanced break slicing and groove extraction



1 > While Live's automatic slicing works well in most situations, to be absolutely sure you're getting the slices you want, you can cut breaks up manually. Delete the **Loose Break** MIDI track and double-click the original audio clip again. Note the small grey lines on the bar above the waveform display, which shows where Live thinks the transients are located.

2 > We're going to use warp markers to show Live where the beats it has missed are. First we turn the transients into warp markers. Select the whole clip by pressing **Ctrl/Cmd+A**, then right-click and select **Insert Warp Markers**. The grey transient turn to yellow warp markers.

3 > We need to locate the drum hits that Live hasn't detected. Zoom in on the clip between 1.2.3 and 1.3. Just after 1.2.4, you'll see an undetected beat. Hit **Ctrl/Cmd+4** to turn off snap, and double-click the grey bar above where the hit starts to create another warp marker.

> Step by step Advanced break slicing and groove extraction (continued)



4 > Repeat the process until you've marked all the missing drum hits. You may want to correct some of the beat detection, too, by deleting warp markers you're not happy with and adding new ones.



5 > Once you're done, right-click the clip and select **Slice to New MIDI Track**. When presented with the option of how you want the beat to be sliced, change the mode from Transient to **Warp Marker**. Click **OK** and Live will chop the beat and create a new MIDI track, as before.

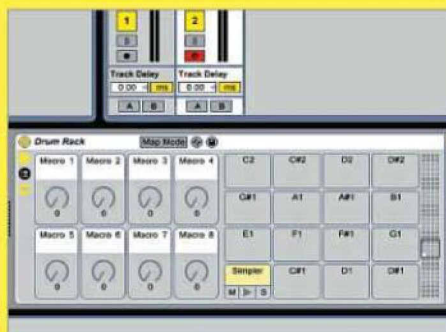


6 > To extract the groove from your freshly warp-marked beat, select the audio clip again, right-click it and select **Extract Grooves**. After a few seconds, Live's Groove Pool will appear, with a groove by the name of **Loose Break** ready to rock. Drag **Straight Break.wav** from the **Focus** folder onto a new track, then drag the **Loose Break** groove onto the clip to apply it.

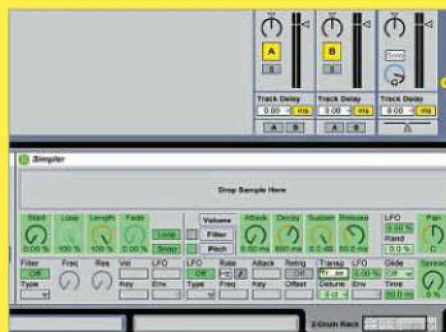
> Step by step Creating a custom breakbeat slicing preset rack in Live



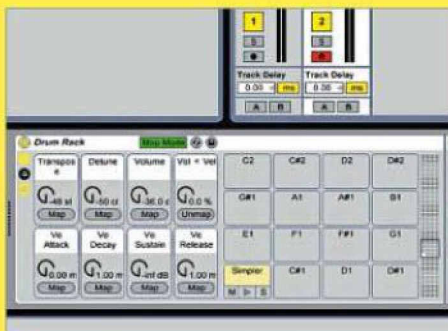
1 > Live's slicing presets are great an' all, but there isn't one with pitch and envelope control, which would be very useful. Thankfully, Live enables us to create our own presets. Start by creating a new Live Set, then drag a Drum Rack from the Device Browser onto a MIDI track.



2 > Click the **Show/Hide Chain List** button and drag Simpler from the device browser onto one of the Drum Rack's empty slots. Hit the **Show/Hide Macro Control** and **Show/Hide Devices** buttons at the top left-hand corner of the Drum Rack to bring up the Simpler and Macro Controls. First, let's assign a macro to the coarse tuning.



3 > Clicking the **Map Mode** button above the Drum Rack, followed by the **Transp** field in the Simpler and the **Map** button underneath the Macro 1 knob. If you like, you can adjust the range in the Macro Mappings panel in the top left-hand corner.



4 > Repeat the process to assign Macro 2 to the **Detune** value, and the bottom row of Macros to the **ADSR** knobs. This leaves us with a couple of knobs free, which we've assigned to the **Velocity Sensitivity** and **Volume** settings. Once you've finished, turn off **Map Mode**.



5 > Set the Macros to the settings you want your slice preset to work at, and set the **Transpose** and **Detune** values to **0**, and the **Sustain** level to **100%**. This means that the sliced breaks will play back at the same pitch and volume as the original sample by default.

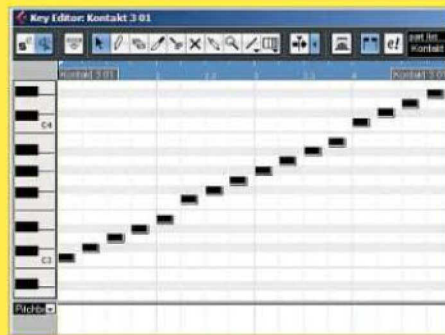


6 > Drag the entire Drum Rack to the **Defaults/Slicing** folder in the Library view. You'll be prompted for a name. Call the preset **Breakbeat** or something equally memorable. Now when you use Live's **Slice to New MIDI Track** function, Breakbeat will be one of the available slicing presets.

> Step by step Tightening up your breaks



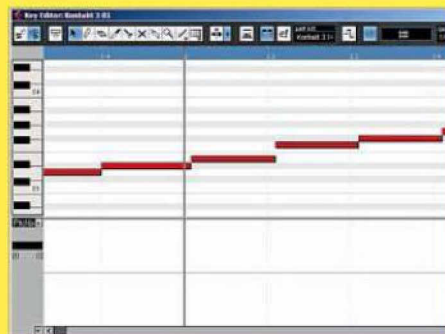
1 > Once you've got a break sliced up and sequenced, the real fun begins. Whether you're using MIDI or audio, there are many, many ways to tweak your beats. If you're using MIDI, then turning down the **Decay** and **Sustain** times in your sampler will result in a less roomy, tighter and more staccato sound.



2 > If that's still not tight enough, try shortening the MIDI notes with your sequencer's snap turned off, to put a gap between each beat. If that's too severe, try turning the patch's amplitude envelope **Release** time up slightly, so that each slice fades quickly to silence, rather than just stopping dead.



3 > You can get a similar effect with an audio clip, as long as your DAW has an envelope-based dynamics processor, such as Cubase's EnvelopeShaper or Logic's Enveloper. Turning the **Release** time down works much like turning the Decay and Sustain values down in a sampler, giving the beat a snappier feel.



4 > If a break isn't working with the rest of the elements in your track, it could be because it's played too loosely. You can try audio or MIDI quantising to remedy this, but you may find that this takes away too much of the feel of the break. If using a weaker quantise setting or manually moving the beats with snap turned off doesn't help, you might be better off using a different break entirely.



5 > If your break is rhythmically tight, but still doesn't sit right in your track, try changing its tuning. In a sampler, this is easy: simply adjust the transpose or fine-tune controls until the break sounds more at home in the mix. If you're working with audio, pitch-shifting is an option, but remember that granular processing will most likely damage the transients.



6 > Like any other element, a break may contain frequencies that clash with other sounds, especially if you're using a separate kick drum alongside a break with a prominent kick sound. To deal with this, turn the velocity of that hit down if you're working with MIDI, filter or EQ the bottom end of the kick, or even sidechain compress the break to duck out whenever the kick drum plays.

Digging in the crates

There are plenty of places to find drum breaks, both online and off. If you're an absolutely beginner, we suggest starting your hunt at www.junglebreaks.co.uk. This excellent website features some of the classic hip-hop and DnB breakbeats for download, and is a great place to learn about the classic breaks. Another great resource is www.the-breaks.com, which lists the sample sources of an enormous number of hip-hop tracks. So, if you hear a beat you like on a hip-hop track, head to this site to trace it, then use it for own nefarious purposes. Another useful, though less break-oriented, site is www.whosampled.com, which conveniently provides video clips of the sampled and original tracks.

If you're lucky enough to live in a town that still has a second hand record shop, then you'll be able to indulge in that popular 20th Century pastime, crate digging. This involves flicking through the available records - funk, rock and jazz are naturally the hotspots for locating some of the phattest drum breaks - and picking out likely candidates for potential purchase. While this is a great way to discover obscure beats and samples that haven't yet been exploited, it can be an expensive and time-consuming activity. Many specialist record stores carry copies of break-packed compilations, such as the *Ultimate Breaks and Beats*, *Super Disco Breaks* and *Dusty Fingers* series. While you won't be breaking any new ground with these classics, you'll at least be sure of picking up some tried and tested grooves.

If your town is a vinyl-free zone, all is not lost - both classic and less well known albums are frequently reissued on CD, not to mention compilations of choice vintage singles. Independent music shops are great places to pick these up, and if there's a Fopp in your local area (go to www.foppreturns.com to find your nearest one), you should be able to pick up a few select cuts without spending too much of your hard-earned cash. What's more, you might even find a dedicated section featuring compilations of tracks sampled by contemporary artists - very helpful for the novice beat-miner.

> Step by step **Make your own breaks**



1 > Sampling breaks from vintage tracks isn't the only way to get that classic sound. With the right processing, you can transform the cleanest-sounding of drum breaks into a badass beat. Let's start by loading EZdrummer Lite (on this month's **cm** DVD - see p40 for details) into your favourite DAW. We're using Cubase.

2 > Set your project tempo to **90BPM** and open up EZdrummer Lite's **Grooves** menu. Select **EZX Vintage Rock»Medium Tempo 80-110BPM/Rock»Groove 01**. Drags the **Hats Closed** beat onto EZdrummer Lite's MIDI track. This gives us a fairly clean-sounding, funky beat to play with.

3 > Hit EZdrummer's **Open Mixer** button. Currently the beat has quite a big, roomy, rock-orientated sound. We can tame this by turning the Room mic all the way down, and make the beat sound rougher-sounding by turning the Overhead mic fully up.



4 > To get that heavily-compressed breakbeat sound, we use Cubase's Compressor effect. Any compressor will do, but it's important to remember that the plug-in you use plays an important role in determining the final sound of the break, so try using a few different ones to see which you like the sound of most.

5 > To rough up the break a bit, add a saturator or clipper effect. When adding dynamics and distortion effects, use a degree of restraint, as extreme settings can take away the punch of the beat's kick and snare. Mixing in a little of the dry signal can help if you want to get a really smashed sound, yet retain the power of the transients.

6 > To customise the break further, insert other plug-ins before the compressor. Here we're using an EQ to give the low-end some added punch, and an envelope follower to give the hits a longer tail without resorting to reverb. When you're done, add a limiter to the end of the chain and export your break as an audio file.

Essential breakbeat viewing



The Amen break
bit.ly/2FO2mx

This audio documentary takes a look at the history of one of the most-sampled breaks of all time, from The Winston's *Amen Brother*, exploring how its deployment has developed through hip-hop, jungle, electronica and DnB. It also discusses the legality of the use of the break in music, commercials and sample libraries, and the cultural impact of this legendary six-second drum solo.
www.nkhstudio.com



DJ Shadow on his favourite record shop
bit.ly/3Xjblj

Taken from the documentary *Scratch*, this clip features Josh Davis, AKA DJ Shadow, waxing lyrical on his "little Nirvana", the basement of a second hand record shop literally stacked with thousands of records. See and hear Josh expound on the future of record shopping, the ephemeral nature of fame and the finding of mummified bats.
www.palmpictures.com/film/scratch.php



The making of Jay-Z's Dead Presidents
bit.ly/1RVN4d

Producer Ski Beatz created the instrumental backing for one of hip-hop legend Jay-Z's biggest tracks. Here we see just how he created the beat for *Dead Presidents* from a sliced-up sample of A Tribe Called Quest featuring Busta Rhymes' *Oh My God (remix)*. Ski's studio gear may be somewhat old-school these days, but the ideas behind the music are still as relevant as ever.
www.myspace.com/skibeatzmusic



Beat Digging Documentary
bit.ly/uF1kO

Hip-hop DJs and producers proclaim their love of crate digging, and offer advice on how to spot vinyl that's worth investing in. While some of this is less than essential (smelling the sleeve has proven to be a hit and miss method of determining the sampling potential of a record at best), this documentary nevertheless provides good insight into why people still hunt for new breakbeats. **cm**
www.myspace.com/busybodyfilms

Next issue **cm**/147

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All magazine and disc contents subject to change